34-01-01

Ventilating, Heating and Air Conditioning

GROUP 34

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PART 34-01 *General Ventilating, Heating and Air Conditioning Service*

Refer to the Wiring and Vacuum Diagrams Manual Form 7795P-70, for schematics and locations of wiring harnesses.

For diagnosis, refer to the Car Diagnosis Manual Form FD7962.

Whenever components in the engine compartment or instrument panel areas are being serviced, the battery ground cable must be removed to eliminate the possibility of electrical shorts, burned-up wiring, and dangerous fires. Extreme care must be exercised when performing electrical tests where the battery must be connected to operate the system.

Carbon monoxide is colorless, odorless and dangerous. If it is necessary to operate the engine with the car in a closed area such as a garage, always use an exhaust collector to vent the exhaust gasses outside the closed area.

PART 34-02 *Ventilating Systems*

COMPONENT INDEX Applies to Models As Indicated	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang
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A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION AND OPERATION

VENTILATION SYSTEM—FORD, MERCURY AND METEOR

FRONT AIR VENTS

The ventilation air ducts are located in the right and left cowl panels and are accessible for service by removing the cowl trim panels. The air vent grilles are an integral part of the trim panels.

When the vehicle is in motion, outside air enters the vehicle through the cowl air intake immediately forward of the windshield, down the right and left cowl side panels and through the air ducts, into the passenger compartment.

The vent air doors are balanced doors in the side cowl assemblies, controlled by Bowden cables. Pull the control knobs for outside air; push in to close the vents. The location of the vents and control knobs is shown in Fig. 1.

REAR VENT

The rear vent (Fig. 2) on the hardtop models is opened and closed by a vacuum control switch on the instrument panel, which governs the operation of the two vacuum actuators. Operation of the rear vent system allows quiet window-up driving in most conditions wet or dry. Smoke and interior odors can also be exhausted through this system when the vehicle is in motion. Some aid to rear window fogging is also accomplished.

On 240 and 302 CID engine installations, a vacuum supply tank located near the battery provides a positive vacuum source for the vacuum actuators. A check valve is built into the supply tank to help maintain a steady source of vacuum.

On 390, 427 and 428 CID engine installations, the vacuum is supplied directly from the engine with a positive check valve in the supply line.

VENTILATION SYSTEM—MONTEGO, FALCON AND FAIRLANE

The ventilation system consists of air ducts located in the right and left cowl top panels. Outside air enters the system through the cowl top grille and flows through the cowl panel to the air ducts. Air flow is controlled by an air vent door in each duct assembly. These doors are controlled by cables that are actuated by push-pull knobs. The knobs are located under the right and left sides of the instrument panel.

VENTILATION SYSTEM—MUSTANG AND COUGAR

The ventilation system consists of air ducts located in the right and left cowl panels. Outside air enters the system through the cowl top grille and flows down through the cowl side panels to the air ducts. Air flow is controlled by an air vent door in each duct assembly. These doors are controlled by cables that are actuated by push-pull knobs recessed in the trim panels.

VENTILATION SYSTEM—MAVERICK

The ventilation system consists of an air duct located on the left side of the vehicle. Also, the vent door on the heater assembly provides outside air ventilation on the right side of the vehicle.

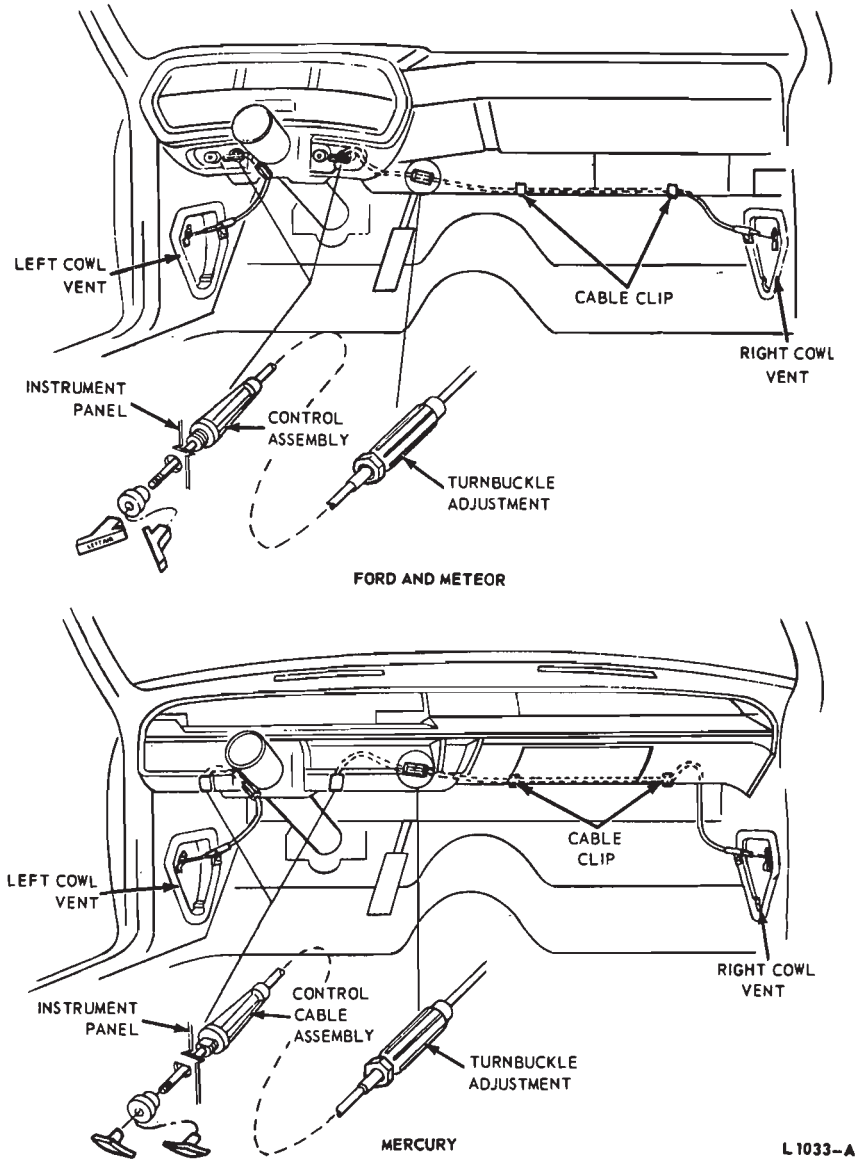

FIG. 1—Fresh Air Ventilation Ducts—Ford, Mercury and Meteor

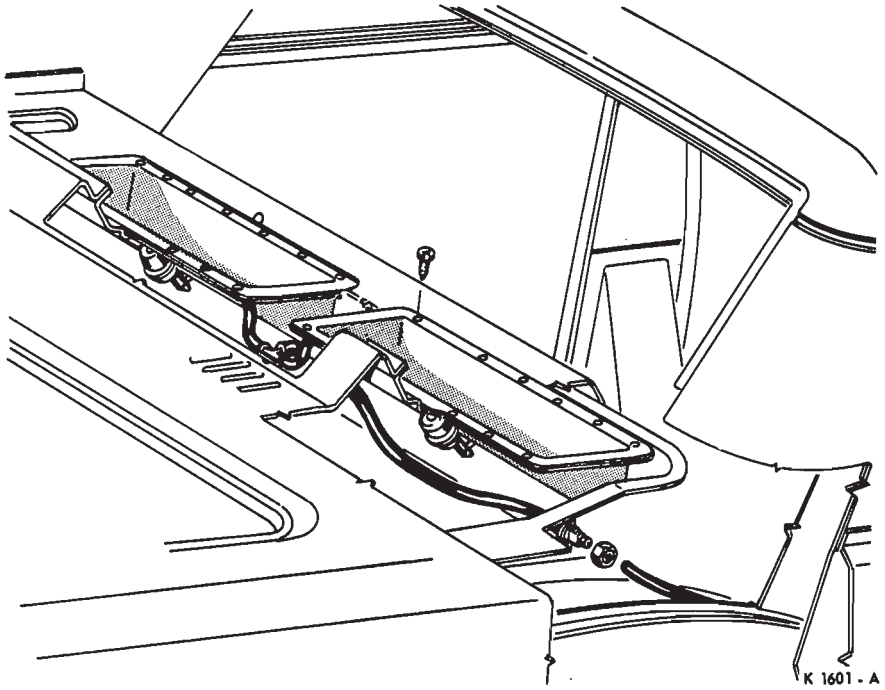

FIG. 2—Rear Vent—Ford, Mercury and Meteor

2 ADJUSTMENTS

VENTILATION SYSTEM CONTROL CABLE ADJUSTMENT—FORD, MERCURY AND METEOR

A turnbuckle is used in each vent control cable to provide an adjust of the vent air door (Fig. 1). To adjust the vent air door, remove the control knob from the control shaft and push the control shaft all-the-way in. Then, adjust the turnbuckle to provide a positive seal between the vent air door and the housing. After the air vent and control cable are properly adjusted, install the control knob on the control shaft leaving 1/16 to 1/8 inch clearance between the knob and the shaft retaining nut.

VENTILATION SYSTEM CONTROL CABLE ADJUSTMENT—FALCON, FAIRLANE, MONTEGO AND MAVERICK

Bowden cable operated vents and air inlets are adjusted so that the vents are tightly closed when the control knobs are all the way in. Loosen the Bowden cable retaining screw at the vent control arm, move the cable housing back and forth until the vent is closed when the knob is 1/16 to 1/8 inch from the in position, then tighten the retaining screws.

AIR VENT CABLE ADJUSTMENTS—THUNDERBIRD AND CONTINENTAL MARK III

Before attempting to adjust the Bowden cables, be sure that the index pins on the cable mounting tabs are well seated in the hole or slot provided in the mounting bracket and that they are securely attached with the mounting screw.

1. Push both air knobs on the instrument panel to the innermost position. If the damper doors do not seal, check the cable and damper for binding or obstructions to free travel. Repair or replace the cables or ducts if required.
2. Pull both Air knobs out as far as they will go. Check both damper doors to make sure that they are open and in contact with the stops. If the damper doors are only partially open and the control knobs partially out, check the cables and damper doors for kinking and binding. Repair as required.
3. If the doors are fully-open, adjust the turnbuckle until the knob is approximately 1-1/2 inches out from the bezel on the control assembly. If adjustment was required in the outward position, push the knobs all the way in. Check the affected damper door for proper sealing. If it does not seal, readjust the turnbuckle to provide a seal, and disregard the position of the knobs with the knobs pulled fully outward.

3 REMOVAL AND INSTALLATION

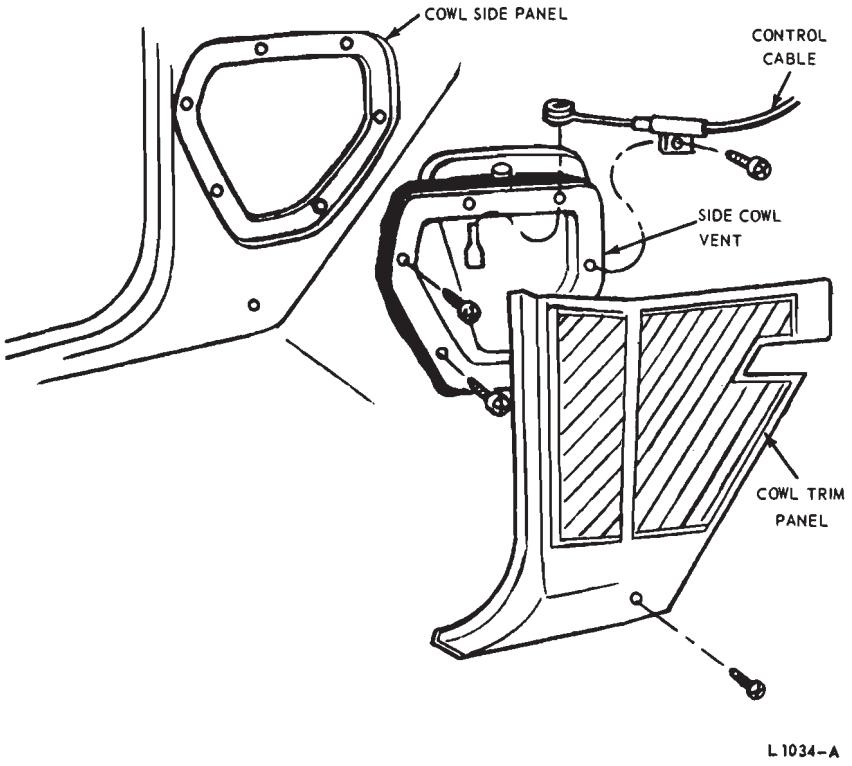

FIG. 3—Side Cowl Vent Installation—Ford, Mercury and Meteor

SIDE COWL VENT—FORD, MERCURY AND METEOR

Remove the side cowl trim panel. Then, remove the six attaching screws (Fig. 3) and disengage the control cable to remove the vent. Apply sealer to the vent flange before installation.

SIDE COWL VENT—MUSTANG AND COUGAR

Remove the parking brake assembly to remove the left vent assembly. Remove the heater to remove the right vent assembly. Remove the side cowl trim panel. Then, remove the five vent attaching screws and remove the vent (Fig. 4).

SIDE COWL VENT CONTROL CABLE—MUSTANG AND COUGAR

Remove the side cowl vent. Remove the cable retaining clip and fastener (Fig. 5). Then, depress the locking tabs near the control knob and remove the cable and housing (Fig. 5).

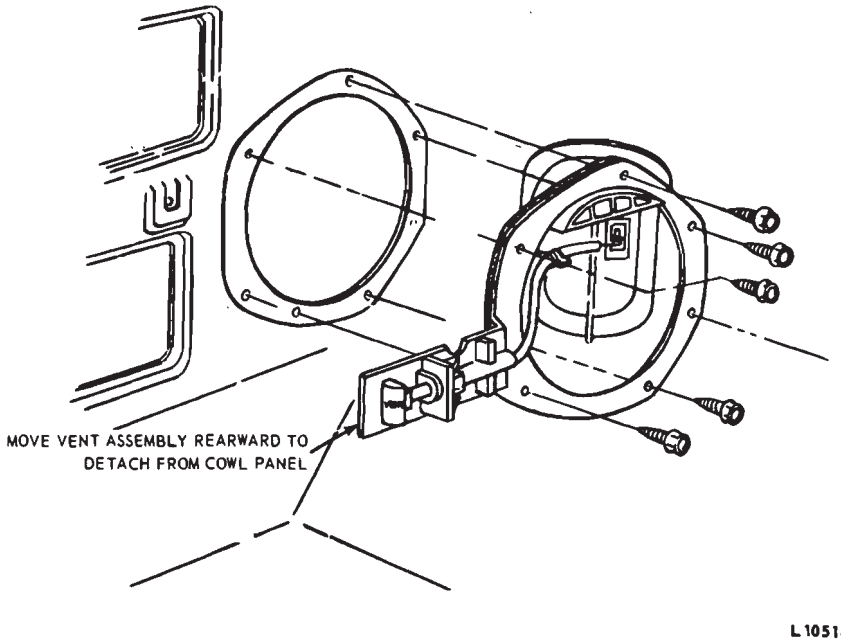

FIG. 4—Side Cowl Air Vent Duct-Mustang and Cougar

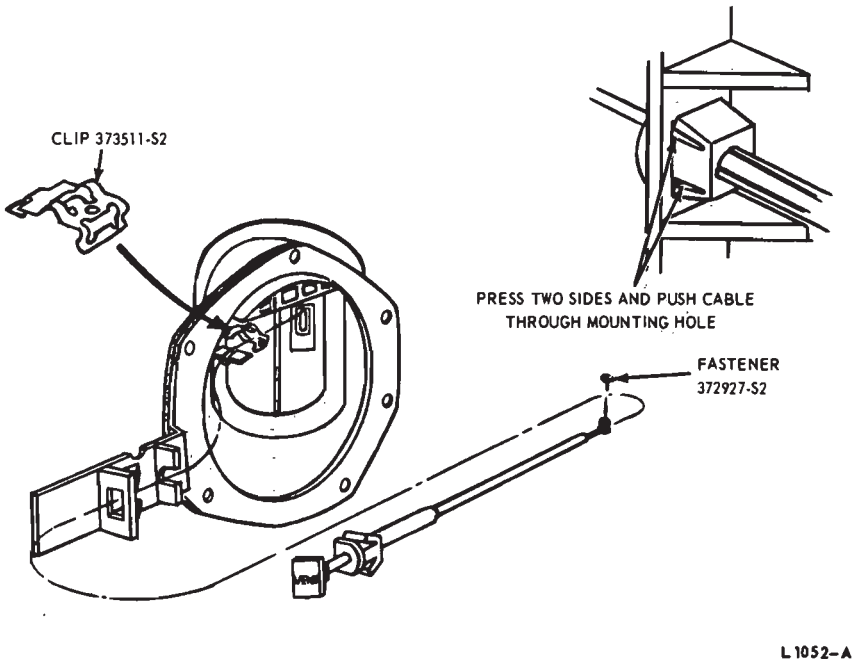

FIG. 5—Side Cowl Vent and Control Cable—Mustang and Cougar

PART 34-03 Heating Systems

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln-Continental	Thunderbird	Continental-Mark III
AIR DUCTS													
Description and Operation		03-02	03-02	03-02	03-03	03-02	03-02	03-03	03-02	03-03	03-08	03-05	03-05
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BLOWER MOTOR RESISTOR													
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BLOWER MOTOR SWITCH													
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Testing	03-11												
CONTROL ASSEMBLY													
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CONTROL CABLES													
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DEFOGGER													
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DEFOGGER MOTOR													
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DEFOGGER SWITCH													
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DEFROSTER NOZZLES													
Removal and Installation		03-28	03-28	03-28	03-30	03-35	03-35	03-35	03-35	03-30	03-41	03-36	03-36
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SPECIFICATIONS	03-46												
VACUUM MOTORS													
Adjustments	03-23												
Testing					03-04				03-04		03-14	03-13	03-13
WATER VALVE													
Removal and Installation					03-28					03-28		03-37	03-37

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION AND OPERATION

HEATER—FORD, MERCURY AND METEOR

The fresh air heater is a blend-air system and consists of the heater housing, a plenum chamber and defroster nozzles. The heater housing is located in the engine compartment and contains the blower and motor, the temperature blend door, and the heater core. The plenum chamber and defroster nozzles are located in the passenger compartment under the instrument panel.

HEATER CONTROLS

Fresh Air Heater Upper Control

Fresh air is supplied to the system from the cowl top grille through the blower into the heater housing. Air discharge is controlled by the position of the heater control (upper) lever. Air is discharged to the floor area with a small amount going to the defroster outlets when the lever is set at FLOOR, and through the defroster outlets when set at MAX defrost. All air flow is stopped when the lever is set at OFF.

Temperature (Lower) Control

The temperature of the discharge air is controlled by the control lower lever. This lever controls the blend-air door within the heater housing and mixes heated air with cool air to obtain the desired air temperature.

A four position blower switch is located above the control levers on Ford and Meteor models and below the control levers on Mercury models. The switch and a resistor provide three blower speeds.

HEATER—MONTEGO, FALCON AND FAIRLANE

The fresh air heater is a blend air system connected to an opening in the right vent air duct. The entire heater assembly is located under the instrument panel (Fig. 1).

Outside air is drawn into the vehicle from the cowl through the right air duct, into the blower housing, forced through and/or around the heater core, mixed, and then discharged through the outlets in the discharge air register or defroster outlets (Fig. 2).

The air temperature is controlled by the position of the temperature air valve, or door, located between the blower and heater core in the heater housing. As the temperature lever is moved from LOW to HIGH; a Bowden cable moves the temperature door in the heater housing from minimum heat to full heat position to modulate the air flow through and/or around the heater core. The air through the core and the air through the bypass chamber is then mixed as it enters the plenum chamber.

A heater air valve, referred to as the heat-defrost door, is located in the plenum chamber to control the discharge air between heat and defrost, and close off all air in the OFF position. The heat-defrost lever actuates a Bowden cable connected to the heater air valve in the plenum chamber. Air flow through the plenum is directed, as required by the operator, through the discharge air outlets in the plenum, in the heat position; or up to the windshield in the defrost position.

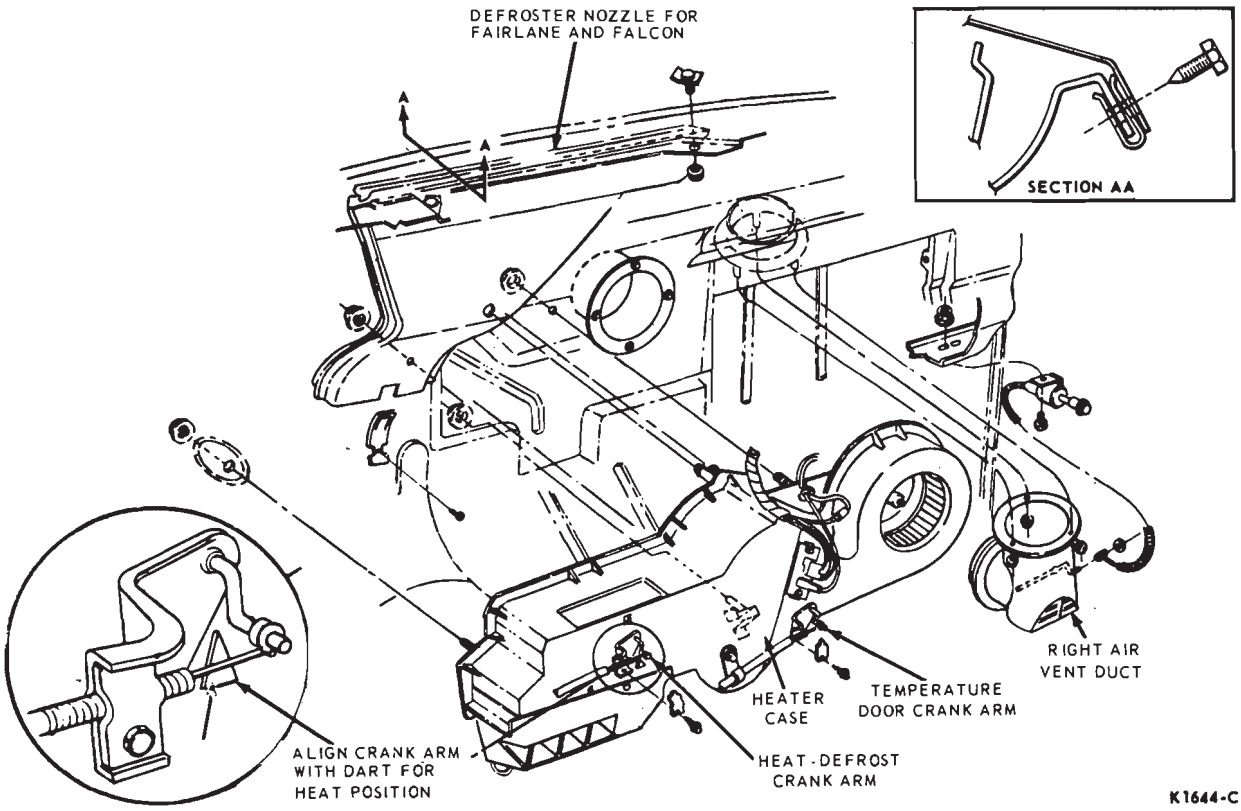

FIG. 1—Heater Assembly—Montego, Maverick, Falcon and Fairlane

The air flow can also be modulated by setting the controls in any position between heat and defrost.

A single defroster nozzle leads to two slots in the forward instrument panel pad.

Three speeds are provided for the blower fan with a four position switch in the control assembly and a resistor assembly located in the heater housing. The resistor in the blower motor circuit controls the low and medium blower speeds.

To provide adequate air distribution on all vehicles, two air distribution register assemblies are provided. Vehicles equipped with consoles or economy air conditioning are equipped with a register that distributes the air to the left and right of the tunnel area. The register for standard vehicles has air outlets across the face of the register and a small outlet on the lower left end.

FRESH AIR HEATER—MUSTANG, COUGAR AND MAVERICK

The fresh air heater is a blend-air system and is located under the instrument panel. It consists of the heater plenum (housing), a blower, a defroster nozzle, an air distribution duct, and the heater controls.

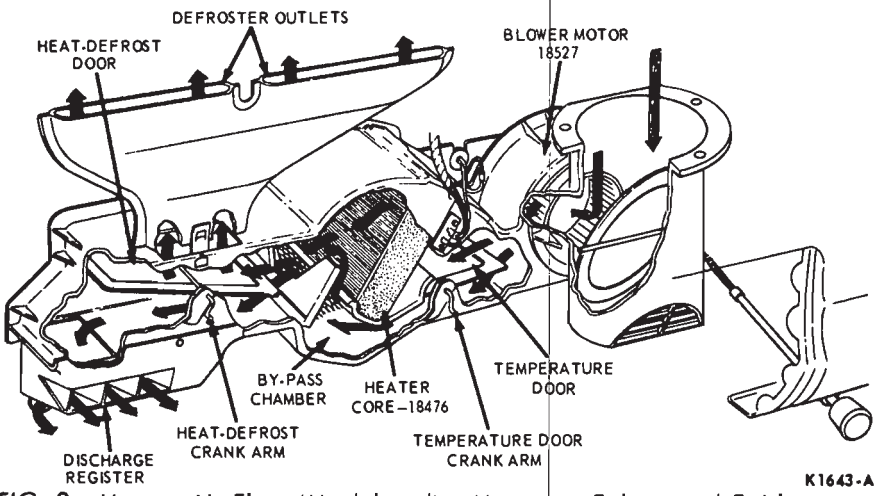

FIG. 2—Heater Air Flow (Modulated)—Montego, Falcon and Fairlane

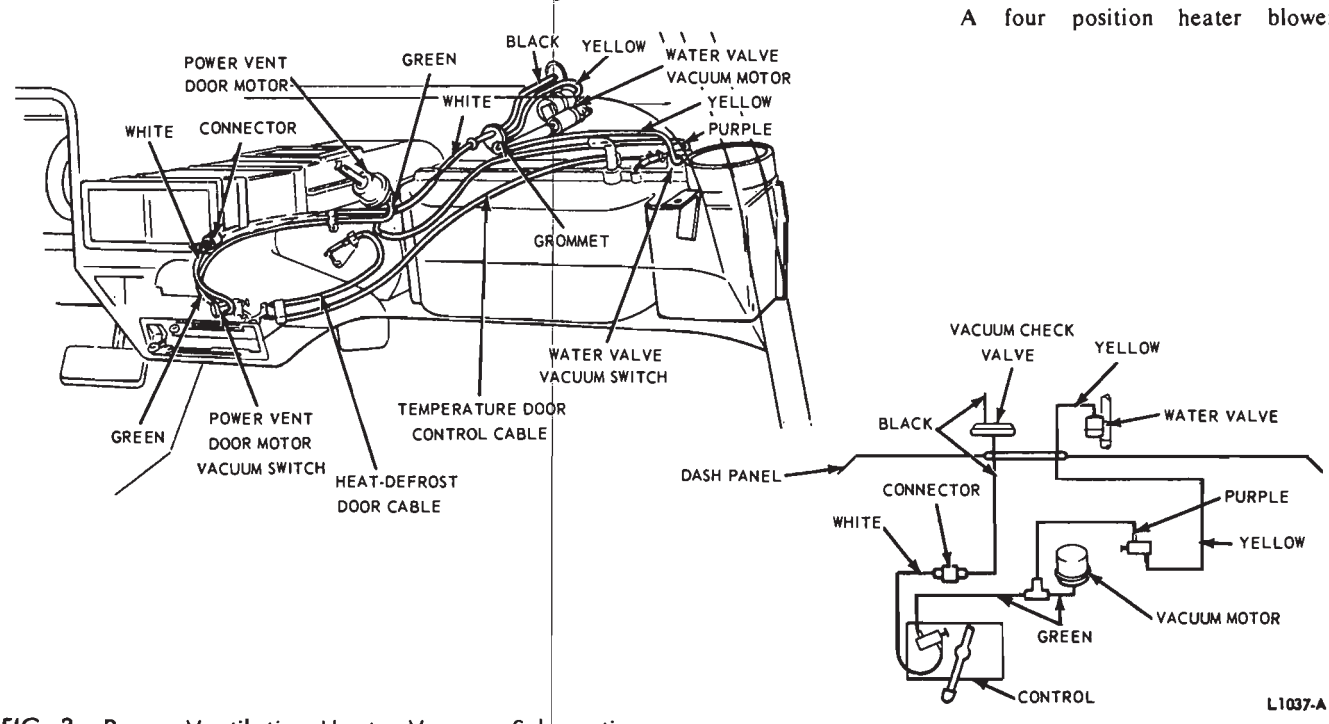

FIG. 3—Power Ventilation Heater Vacuum Schematic

POWER VENTILATION HEATER—MUSTANG AND COUGAR

The power ventilation heater is a blend air system similar to the fresh air heater and is located under the instrument panel. A power vent air duct, a vacuum switch, an instrument panel register, and a register to duct connector are used in addition to the fresh air heater components. The vacuum schematic and hose routings are shown in Fig. 3 and the control setting vacuum application chart is shown in Fig. 4.

HEATER CONTROLS

Fresh air is supplied to the system through an opening in the upper right cowl side panel. Air discharge is controlled by the position of the heater control (upper) lever. Air is discharged to the floor area when the lever is set for heat; through the defroster outlet when the lever is set for defrost; and through the instrument panel register (Power Ventilation Heater Only) when the lever is set for power vent. All air flow is stopped when the lever is set at off.

The temperature of the discharge air is controlled by the heater control lower lever. This lever controls the blend air door within the heater housing and mixes cool air with heated air to obtain the desired air temperatures.

A four position heater blower

<table>
<tr><th colspan="3" rowspan="2"></th><th colspan="4">FUNCTIONAL CONTROL LEVER POSITION</th></tr>
<tr><th>OFF</th><th>HEAT</th><th>DEFROST</th><th>POWER VENT</th></tr>
<tr><td rowspan="6">VACUUM ACTUATED</td><td colspan="2">POWER VENT-DEFROST DOOR</td><td colspan="3">IN DEFROST POSITION
NV</td><td>IN POWER VENT POSITION
V</td></tr>
<tr><td colspan="2">POWER VENT VACUUM SWITCH</td><td colspan="3">SEALED</td><td>OPEN</td></tr>
<tr><td rowspan="3">WATER VALVE</td><td>COOL</td><td colspan="3" rowspan="3">OPEN
NO VACUUM</td><td>CLOSED</td></tr>
<tr><td>MOD</td><td></td></tr>
<tr><td>WARM</td><td></td></tr>
<tr><td rowspan="3">WATER VALVE VACUUM SWITCH</td><td>COOL</td><td colspan="3" rowspan="3">SEALED</td><td>OPEN</td></tr>
<tr><td>MOD</td><td></td></tr>
<tr><td>WARM</td><td></td></tr>
<tr><td rowspan="11">CABLE CONTROLLED</td><td rowspan="10">TEMPERATURE (BLEND) DOOR POSITION</td><td rowspan="3">COOL</td><td rowspan="10"></td><td colspan="3">OUTSIDE AIR BYPASSES HEATER CORE AND DISCHARGED</td></tr>
<tr><td>THRU AIR DUCT TO FLOOR</td><td>THRU DEFROSTER NOZZLE</td><td>THRU AIR REGISTERS</td></tr>
<tr><td colspan="3">OUTSIDE AIR GOES THRU AND AROUND HEATER CORE, MIXED AND DISCHARGED</td></tr>
<tr><td rowspan="3">MOD</td><td>THRU AIR DUCT TO FLOOR</td><td>THRU DEFROSTER NOZZLE</td><td>THRU AIR REGISTERS</td></tr>
<tr><td colspan="3">ALL OUTSIDE AIR GOES THRU HEATER CORE AND DISCHARGED</td></tr>
<tr><td rowspan="3">WARM</td><td>THRU AIR DUCT TO FLOOR</td><td>THRU DEFROSTER NOZZLE</td><td>THRU AIR REGISTERS</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="2">HEAT-DEFROST DOOR POSITION</td><td>IN OFF POSITION</td><td>IN HEAT POSITION</td><td>IN DEFROST POSITION</td><td>IN POWER VENT POSITION</td></tr>
</table>

MOD—modulated V—vacuum NV—no vacuum

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FIG. 4—Power Ventilation Heater Control Setting Vacuum Application Chart—Mustang and Cougar

switch is located to the left of the heater control levers. The switch and a resistor provide three blower speeds.

HEATER AND VENTILATION SYSTEM—THUNDERBIRD AND CONTINENTAL MARK III

HEATING AND FORCED VENTILATION SYSTEM

The heating and forced ventilation system is standard on vehicles without air conditioning. The system consists of a heater, four-speed blower, four high level registers on the instrument panel, two floor level registers in front, two floor level outlets behind the front seat, one extractor vent under the rear window and a control assembly on the instrument panel to the left of the steering coiumn.

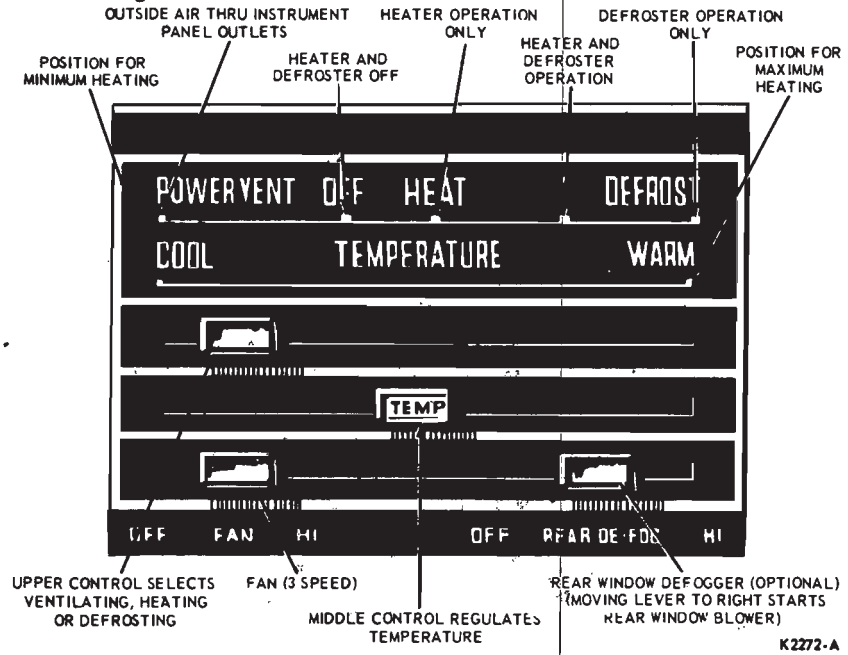


FIG. 5—Heater Controls—Thunderbird and Continental Mark III

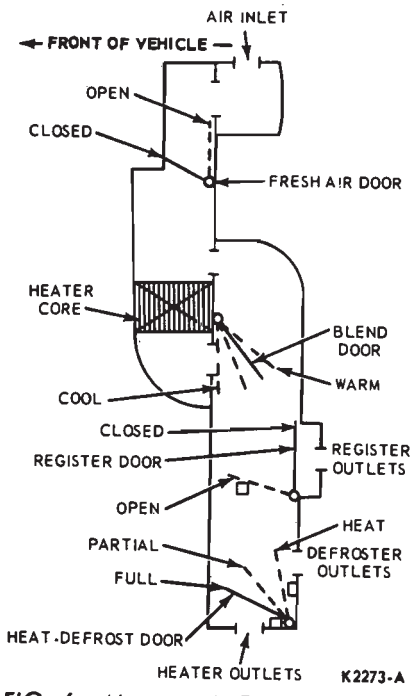


FIG. 6—Heater Air Door Positions—Thunderbird and Continental Mark III

Air Outlets

The heating system is a blend-air system receiving outside air from the cowl air intake through the right cowl side panel. Air outlets under the instrument panel near the tunnel discharge warm air to both right and left front floor areas. A duct running along the tunnel leads to two outlets to provide warm air to the rear seat floor area.

Four registers in the instrument panel assembly discharge air into the passenger compartment for the forced ventilation system. These registers can be positioned to direct the air-flow coming out of the registers. Three of the registers are barrel-type registers that can be moved up and down. These three registers contain vertical vanes that can be positioned horizontally by rotating a horizontal wheel within each assembly for lateral distribution by a center sliding knob or for vertical adjustments by rotating the barrel. The right register incorporates a rotating ball for distribution of air. The push-pull knob adjacent to each of the registers will open or close the register.

Heater Controls

The control assembly to the left of the steering column, contains a functional control lever, a temperature control lever, a blower control switch and an available rear window de-

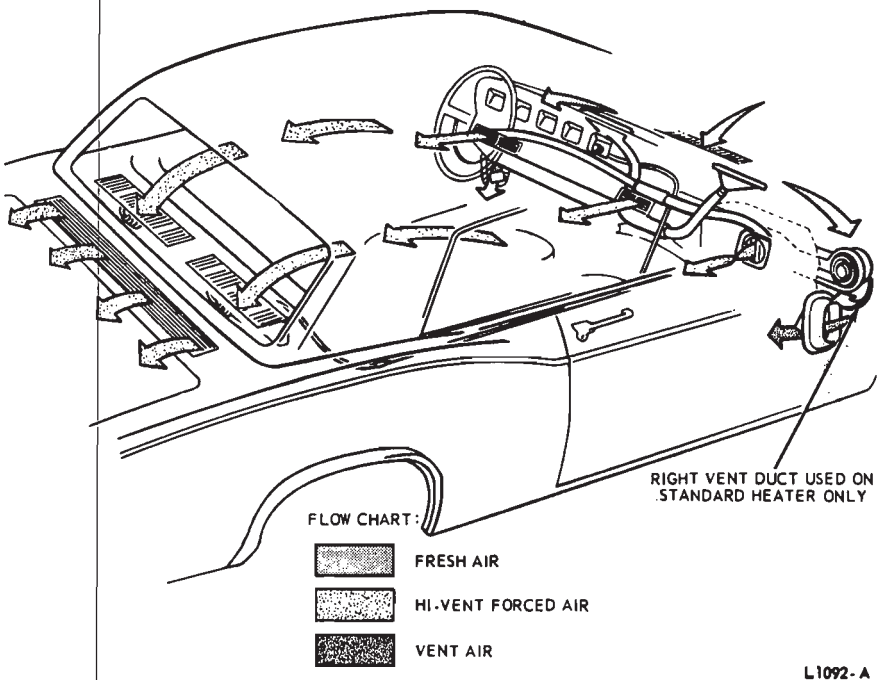


FIG. 7—Body Ventilation Air Flow—Thunderbird and Continental Mark III

fogger or heated backlite switch (Fig. 5).

The functional control (upper) lever actuates a vacuum regulator that controls vacuum motors at the fresh air, register and heat-defrost doors, and the water valve.

The temperature control (lower) lever operates a control cable that controls the temperature-blend door in the plenum chamber which mixes fresh air with the warm air from the heater core in direct proportion to the blend door setting. When the temperature lever is in the COOL position, it physically actuates a water valve vacuum switch which is located on the bottom of the control assembly. The water valve vacuum switch closes the water valve when the temperature lever is in the COOL position, by applying vacuum to the water valve vacuum motor. The water valve is also closed when the functional control lever is in the OFF position. In the event of a vacuum failure, the system is designed to fail in the full defrost position.

A four-speed blower control switch, located below the heater control assembly, controls air velocity. A trol assembly, controls air velocity. A REAR DE-FOG (or heated backlite) switch mounted to the right of the blower control, controls de-fogging of the rear window.

Fig. 6 shows the positions of the fresh air, blend, register, and heat-defrost doors when the functional control lever on the control assembly is in the OFF position, and the temperature control lever is approximately midway between COOL and WARM. The positions of these doors are indicated by solid lines. The dotted lines indicate other possible positions of the doors.

Air Door Operation
Fresh Air Door

The fresh air door can assume only two positions; open or closed (Fig. 6). It is vacuum controlled by the setting of the functional control lever and is open in all settings of the functional control lever except OFF. When the door is open, it allows air to flow from the outside air inlet toward the heater core.

Blend Door

Air coming through the fresh air door is forced through and/or around the heater core, depending on the position of the blend door which mixes the air (heated and fresh) as it enters the plenum chamber. The blend door is connected by a control cable to the temperature control lever. When the blend door assumes its COOL position, only fresh (unheated) air will enter the plenum chamber. When the blend door assumes its WARM position, only heated air will enter the plenum chamber. The blend door can assume any number of intermediate positions between COOL and WARM.

Register Door

The register door (Fig. 6), like the fresh air door, is a two position door that is vacuum controlled by the setting of the functional control lever. When the register door is open, it directs the blended air that flows past the blend door to the hi-level registers on the instrument panel, and restricts air-flow to the heat-defrost door. When the register door is closed, all air from the blend door flows to the heat-defrost door. The register door is open only when the functional control lever is set in the POWER VENT position.

Heat Defrost Door

The heat-defrost door (Fig. 6), is a three position door that is vacuum controlled by the setting of the functional control lever. When the lever is in the HEAT position (Fig. 5), the heat-defrost door assumes the HEAT proximately 10% of the air will bleed the air through the floor outlets (approximately 10% of the air will bleed through the defrosters). When the control lever is set in the DEFROST position, the heat-defrost door assumes its Full position and directs practically all of the air through the defroster outlets, with a small amount of bleed air going to the heater outlets. When the control is set midway tion and directs approximately 50% of door assumes its partial defrost position and directs approximately 50% of the air to the defrosters.

The heat-defrost door vacuum motor is a dual diaphragm motor. Applying vacuum to one of the connectors on the motor causes the motor to move about halfway. Applying vacuum to both of the connectors on the motor causes the motor to move all of the way.

Water Valve

The flow of engine coolant through the heater core is controlled by the water valve. The water valve is controlled by the settings of both the functional control lever and the temperature control lever. The water valve opens and allows engine coolant to flow through the heater core whenever the temperature control lever is in any position other than COOL, except when the functional control lever is at OFF. With the functional control lever in the OFF position, the water valve is closed by vacuum from the vacuum regulator, which overrides the temperature lever.

Body Ventilation and Rear Vent System
Front Ventilation

The front ventilation air ducts are located in the right and left cowl panels and are controlled by two levers which are located to the left of the steering column on the lower surface of the instrument panel. A turnbuckle adjustment in each control cable is provided to insure a positive seal between the vent doors and inner surface of the ducts.

Front ventilation is controlled by moving the right and left control lever from the closed position (up) to any position within the vertical slots, to the full open position, or all the way down. Air deflectors are provided on both vent ducts to direct air to the right and left floor area.

Rear Vent and Controls

The rear (power) vent system draws stale air or smoke from the passenger compartment, through a double rear vent assembly. The system reduces fogging of the rear window and provides improved air circulation throughout the passenger compartments.

The rear ventilation system is actuated by the Rear Vent control, located in the vent control bezel on the lower left side of the instrument panel. Moving the control to OPEN causes vacuum to be applied to the vacuum actuators on the rear vent assemblies. Moving the control to CLOSE, releases the vacuum to the actuators which are spring loaded to close.

On units without an air conditioner, maximum forced ventilation is attained with the heater upper control lever on POWER VENT and the

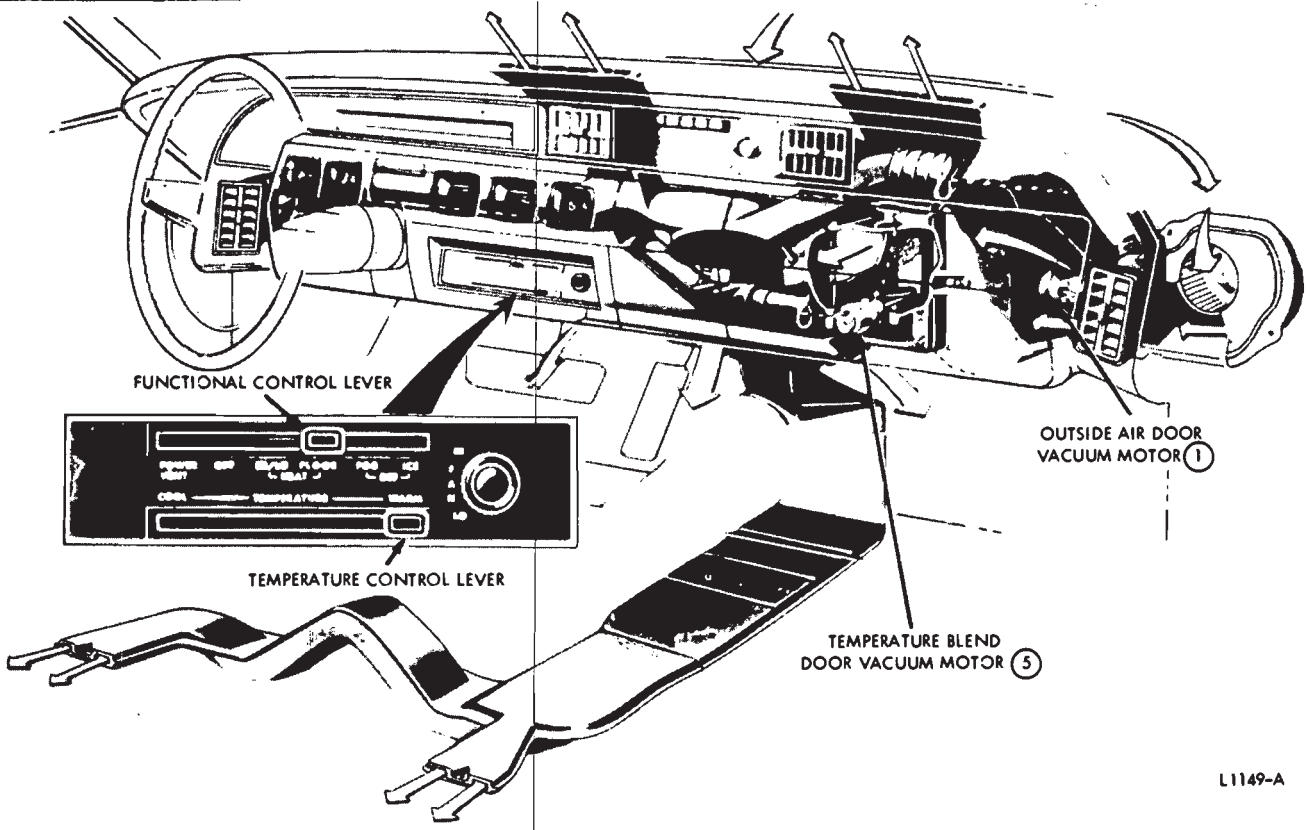


FIG. 8—Standard Heater System Air Flow (Maximum Heat Position)—Lincoln Continental

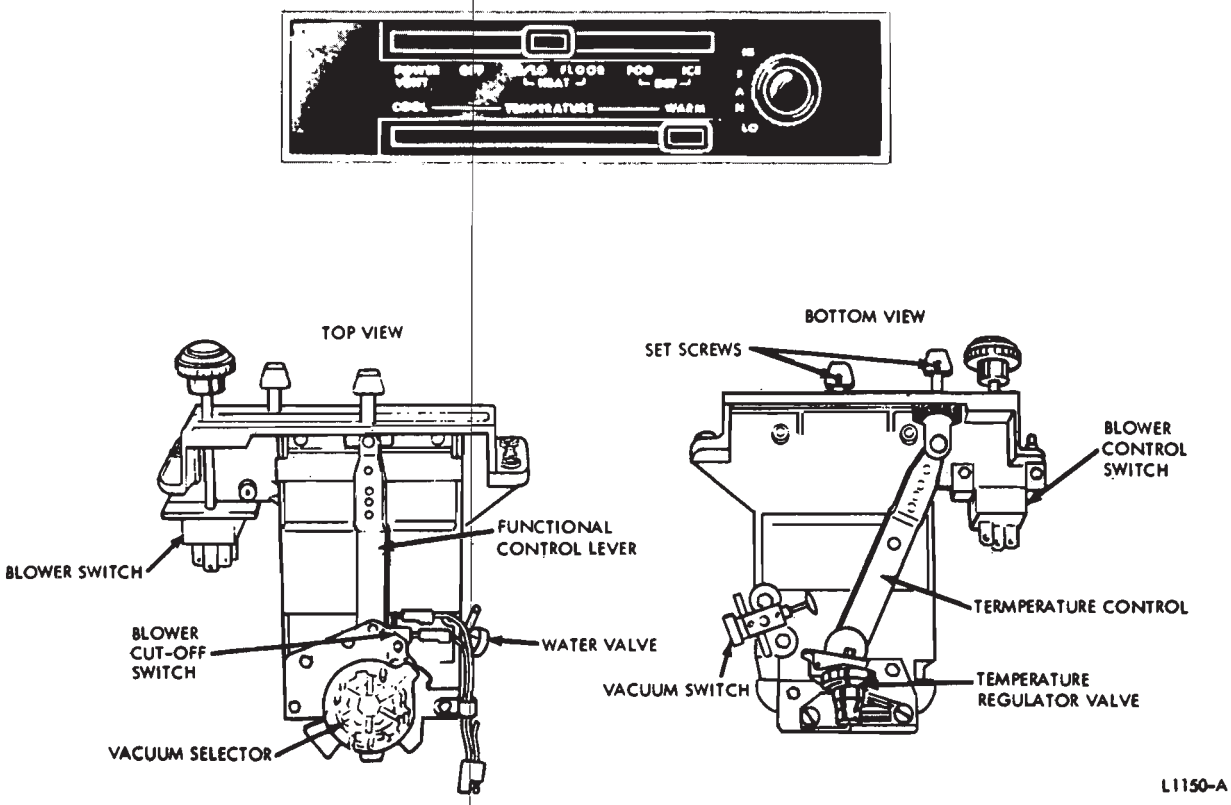


FIG. 9—Standard Heater Control Assembly—Lincoln Continental

blower motor on HI.

Complete body ventilation is provided for all climatic conditions for either heater system, or heater and forced ventilation system. Fig. 7 shows the interior airflow when the forced ventilation, right and left vents, and the rear vent systems are in the open position, to provide maximum ventilation with all windows closed.

STANDARD HEATER SYSTEM—LINCOLN CONTINENTAL

The Lincoln Continental standard heater system receives outside air from the upper cowl air intake through the right side cowl panel. The outside air door (1) is located in the heater case between the heater core and blower motor and wheel assembly. This door restricts air through the system in the OFF control position. The Temperature Blend Door (5) in the plenum chamber is actuated by a vacuum regulator on the control assembly. The regulator modulates vacuum to the Temperature Blend Door vacuum motor in proportion to the setting of the temperature control lever. Warm air through the heater core is mixed in the heater plenum with the cool air that by-passes the core before being discharged through four registers in the instrument panel, through the heater plenum air outlets, or through the defroster nozzles.

The control assembly is located in the lower instrument cluster to the right of the steering column (Fig. 8).

Two rectangular center registers pivot up and down. Vertical vanes within each register are positioned by sliding a horizontal bar for air deflection. Sliding the bars outboard closes the registers. Two rectangular registers located in the far right and left sides of the instrument panel can be pivoted right and left and horizontal vanes in each register are actuated by moving the slide bars up to open and down to close.

SYSTEM COMPONENTS

Controls

1. The functional control lever (upper lever, Fig. 9) actuates a vacuum selector that controls vacuum motors at the Outside Air Door (1), vent/heat door (6) and heat/defrost door (7). In the **OFF** position, a micro switch (blower cut-off switch) adjacent to the vacuum selector is activated by the selector cam plate to turn off the blower. The blower is on in all other control positions and the four blower speeds are controlled by the electrical circuit through the resistors in the blower resistor assembly located on the front of the heater case assembly.

The temperature control lever (lower lever, Fig. 8) actuates a vacuum regulator on the control assembly that modulates vacuum to the Temperature Blend Door Vacuum Motor (5), from full vacuum in **COOL** position to no vacuum in **WARM** position. The water valve vacuum switch on the control assembly is also activated when the lever is in **COOL** position to close the heater water valve (4) (vacuum).

The blower switch is located to the right of the control levers in the control assembly. Turn the blower switch knob clockwise from **LOW** through two medium speeds to **HIGH**, to control air volume. To turn the blower OFF, the functional control lever is turned to the **OFF** position.

2. The Heater Water Valve and vacuum motor assembly (4) is located immediately outside the heater case in the heater inlet hose. The inlet hose is 5/8 inch I.D., the outlet hose is 3/4 inch I.D. (Fig. 8).

Heater Case Assembly

The heater case assembly (Fig. 49) is located on the engine side of the dash panel to the right of the centerline and contains the heater core, outside air door (1) and blower motor and wheel assembly.

Plenum Chamber

The plenum chamber (Fig. 50) located under the instrument panel contains the Temperature Blend Door (5), vent/heat door (6) and Heat/De-

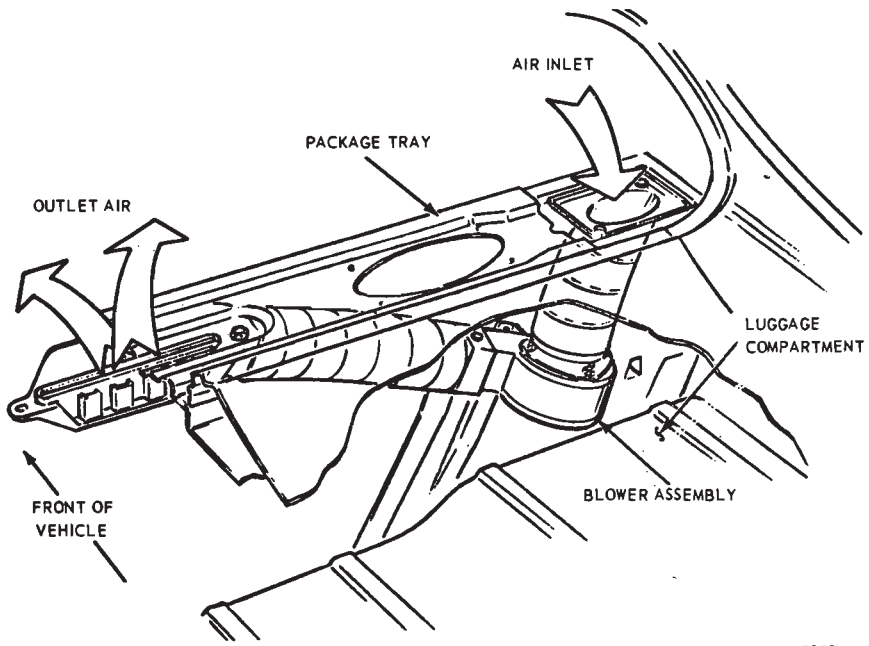


FIG. 10—Remote Rear Window Defogger Installation

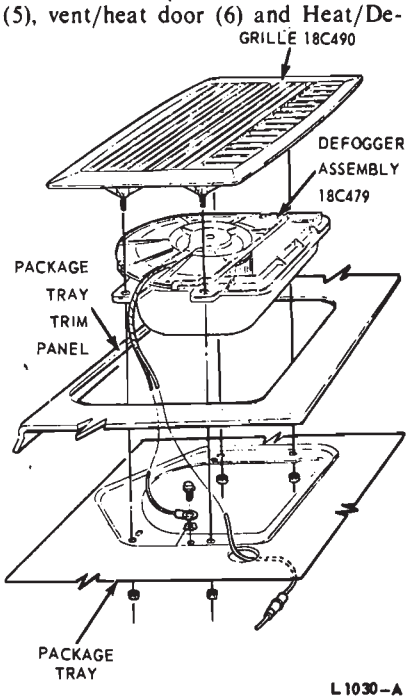


FIG. 11—Integral Rear Window Defogger Installation

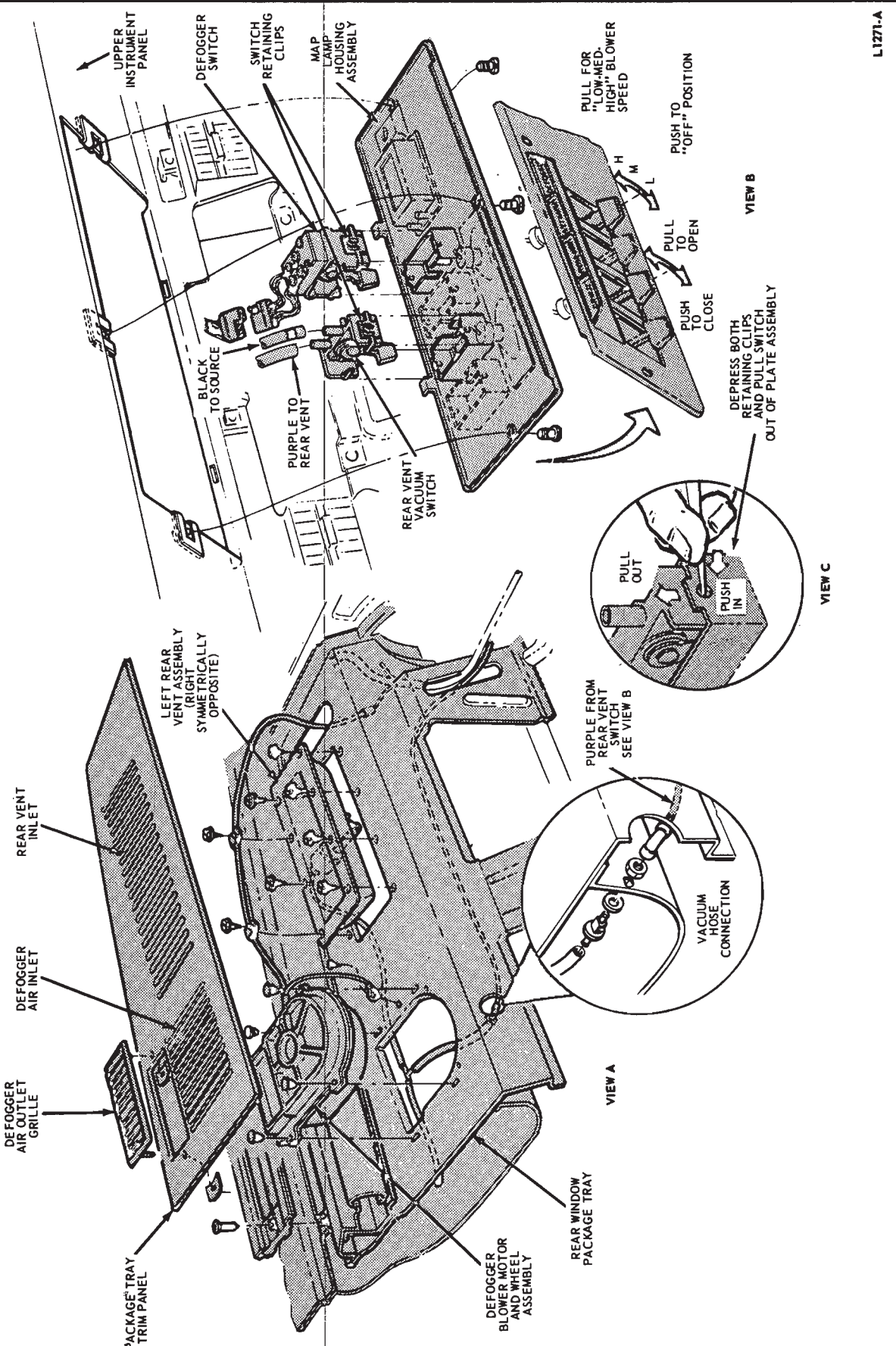


FIG. 12—Rear Vent System and Rear Window Defogger—Lincoln Continental

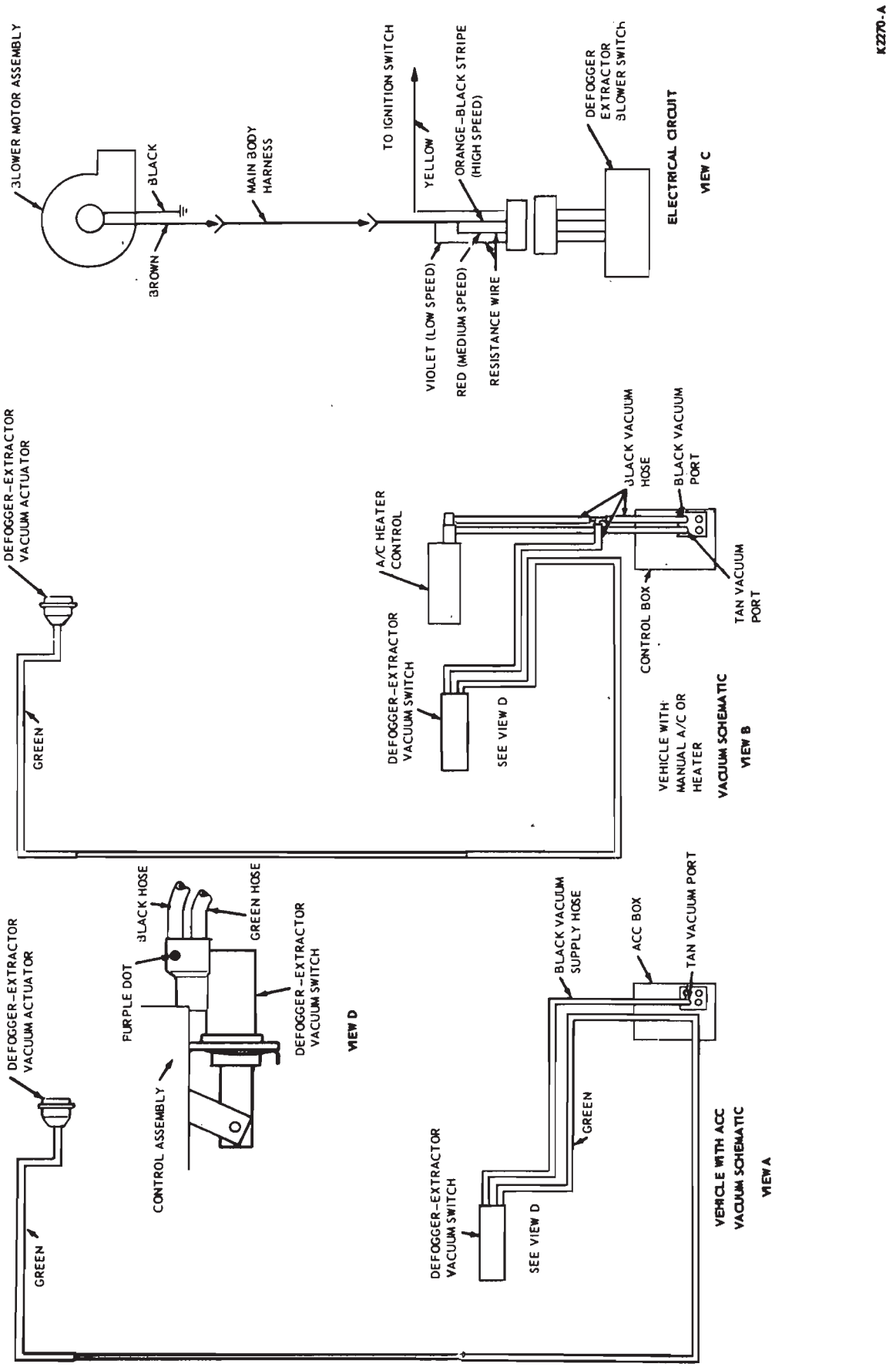


FIG. 13—Rear Window Defogger Vacuum and Electrical Schematics

frost Door (7). Two rectangular openings in the dash panel are provided for air passage from the heater case into the plenum.

Air Distribution Duct

The air distribution duct (Fig. 8), part of the plenum chamber, distributes air to the front floor and a rear seat heat duct leading from the distribution duct distributes air to the right and left rear floor areas.

Defroster Nozzles

The right and left defroster nozzles (Fig. 8) are connected to air outlets on the plenum chamber with rigid air ducts.

Registers

Air to the four registers in the instrument panel (Fig. 8) is delivered from the plenum directly to the two center registers through the center air distribution duct and to the right and left outboard registers through semi-rigid ducts connected to openings in the center duct.

Rear Seat Heat Duct

The rear seat heat duct (Fig. 8) seats firmly onto the bottom opening in the air distribution duct on the plenum chamber. The duct is under the carpet on the right floor paralleling the tunnel, and air is discharged through two outlets on each side of the tunnel to the rear seat floor area.

REAR WINDOW DEFOGGER—FORD, MERCURY AND METEOR

A new remote defogger is used on Ford Models 63, Meteor Models 57C and F, and Mercury Models 53C, F, and M, 63G and H, and 57C, F and M. This defogger differs from the defogger used on other models by the location of the blower which is located off to the side of the outlet nozzle (Fig. 10). The defogger used on other models has the blower integral with the air outlet (Fig. 11).

REAR VENT SYSTEM AND REAR WINDOW DEFOGGER—LINCOLN CONTINENTAL

Fog accumulating on the inside of the rear window can be cleared by the rear window defogger, located in the rear package tray (Fig. 12) by activating a control switch in the instrument panel map lamp housing. Inside air is drawn into a blower housing and immediately discharged to the rear window. A four-position switch provides three blower motor speeds.

The rear window defogger assembly also includes a valve assembly with vacuum-actuated rear vent doors that permit smoke extraction from the passenger compartment through openings in the package tray trim panel over each vent assembly and discharge from the vehicle through grilles immediately outside the rear window. Two control levers located in the instrument panel map lamp housing on the right side of the steering column are provided to select the three blower speeds and controls the valve position for defog operation (no vacuum) and smoke extraction (vacuum). Refer to Fig. 13.

REAR WINDOW DEFOGGER—THUNDERBIRD AND CONTINENTAL MARK III

The rear window defogger is an integral unit and is located in the center of the package tray (Fig. 11). Inside air is drawn into the defogger assembly through the front part of the grille and is discharged towards the rear window through the rear part of the grille. The defogger blower switch is located next to the heater or heater-air conditioner blower switch on the instrument panel.

2 TESTING

The following tests may be made on the heater: Burned out fuses, loose wire connections, damaged wires or collapsed hoses. Loose defroster ducts and air leaks in the body may be determined by visual inspection of the parts.

HEATER BLOWER MOTOR CURRENT DRAW TEST

This test will determine if the blower motor is operating properly. Connect a 0-50 ammeter as shown in Fig. 14. The blower motor will operate independently of the control switch, and the current drawn by the motor will be indicated on the ammeter. Current draw should be to specification.

LOOSE BLOWER TEST

Turn on the heater switch, and listen for the sound of the motor. If only a hum is heard, the blower is loose on the motor shaft.

BLOWER SWITCH TEST

To check the blower switch, place the switch in the off position. Then using a self-powered test light or ohm meter, check for continuity between all of the terminals, two at a time. If the light should go on, this will indicate a short between the terminals or an inoperative switch.

OPEN CIRCUIT TEST

All electrical circuits must be complete from the source of power (battery), to the unit where the power is used, and back to the source of power again. A check at each connection in a circuit, starting at the battery, will locate an open circuit or will show that the circuit is complete.

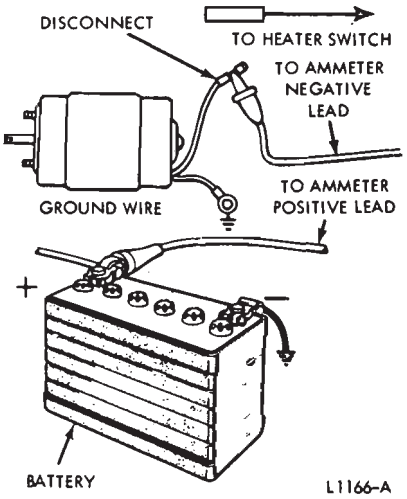


FIG. 14—Heater Motor Current Draw Test

An ohmmeter or self-powered test light connected at any two points of a

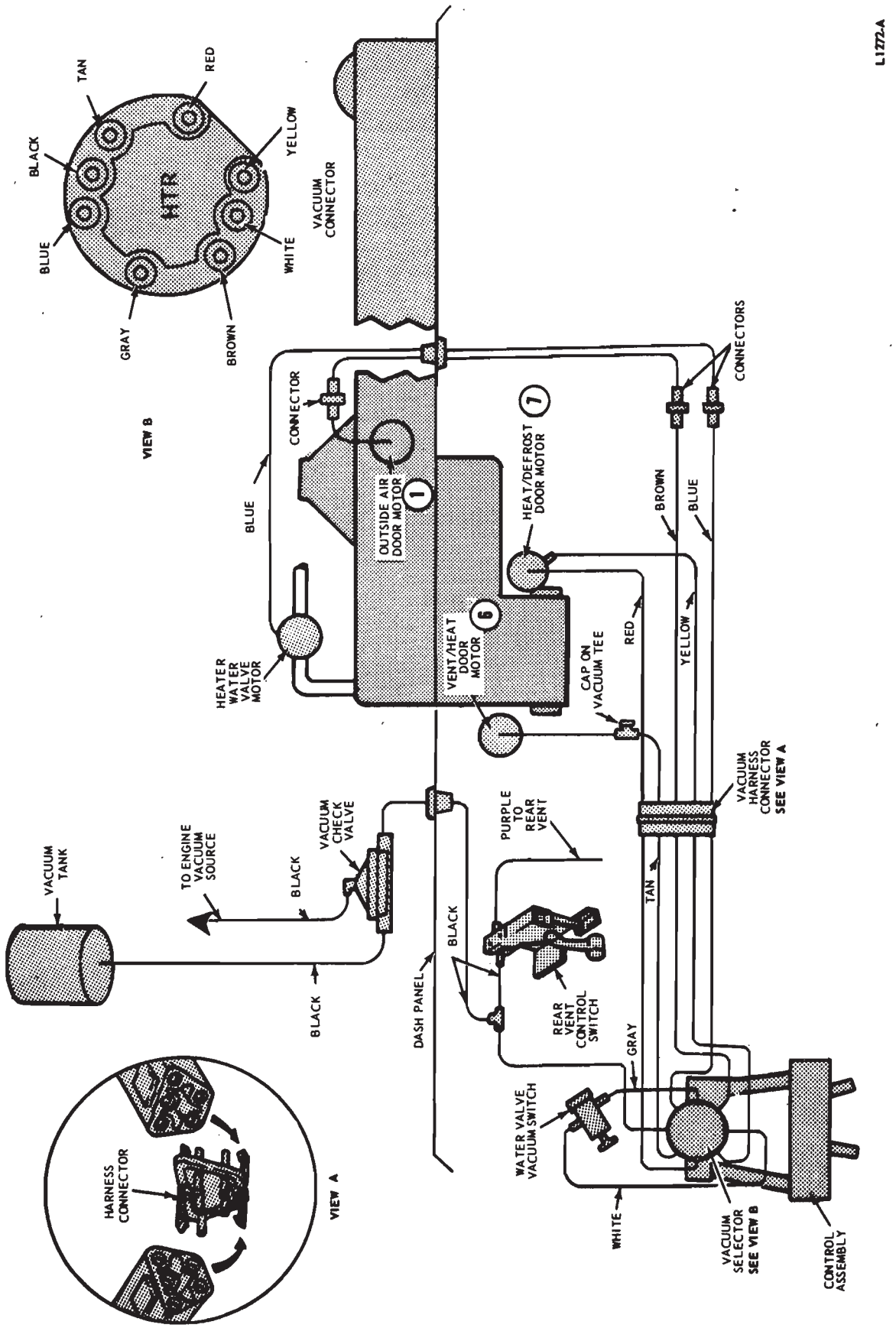


FIG. 15—Heater Control System Vacuum Schematic—Thunderbird and Continental Mark III

CONTROL SYSTEM ①		TEMPERATURE CONTROL LEVER (BOWDEN CABLE CONTROLLED)	FUNCTIONAL CONTROL LEVER POSITION (VACUUM CONTROLLED)				
			POWER VENT	OFF	HEAT	PARTIAL DEFROST	FULL DEFROST
FRESH AIR DOOR	DOOR POSITION		OPEN	CLOSED	OPEN		
	BROWN		NV	VAC.	NV		
REGISTER AIR DOOR	DOOR POSITION		OPEN	CLOSED			
	TAN		VAC.	NV			
HEAT DEFROST DOOR	DOOR POSITION		FULL DEFROST		HEAT	PARTIAL DEFROST	FULL DEFROST
	YELLOW / RED		NV / NV		VAC / VAC	NV / VAC	NV / NV
WATER VALVE – BLUE		WARM	OPEN	CLOSED	OPEN		
		MOD	NV		NV		
		COOL	VACUUM				
WATER VALVE VACUUM SWITCH	OUTPUT-GRAY	WARM					
		MOD	NV	NV-8 SEE NOTE ②	NO VACUUM		
		COOL	VAC.	NV	VACUUM		
	SUPPLY-WHITE		VAC.	NV	VACUUM		
TEMPERATURE BLEND DOOR (BOWDEN CABLE CONTROLLED)		WARM	(A)		ALL AIR PASSES THRU HEATER CORE–SAME APPLIES TO (A)		
		MOD	(B)		AIR PASSES THRU AND AROUND HEATER CORE – THEN MIXED SAME APPLIES TO (B)		
		COOL	(C)		ALL AIR BYPASSES HEATER CORE–SAME APPLIES TO (C)		
BLOWER SWITCH			(D)	MAN. OFF	MANUALLY ON L-M-H OFF – RAM AIR SAME APPLIES TO (D)		

② In Off Position Water Valve is Closed by Selector Lever and Overrides Temperature Lever

① Colors Indicate Vacuum Hose Color Code

L – Low
M – Medium
H – High
VAC – Vacuum
NV – No Vacuum
MOD – Modulated
PART – Partial
DEF – Defrost

K1947-C

FIG. 16—Heater Control Positions and Vacuum Application Chart—Thunderbird and Continental Mark III

circuit with the power removed from the circuit, will show if the circuit between the two connections is open or complete.

If the meter does not move or has a light movement (high resistance), the circuit may have a poor connection or broken wire. If the bulb does not light, the circuit is open.

If the meter movement is great or full (low resistance), the circuit is complete. If the bulb lights, the circuit is complete.

PLUGGED HEATER CORE TEST

Start the engine and temporarily remove the outlet hose from the heater core (the hose that leads to the water pump). Very little or no flow of water from one core outlet indicates that the core is plugged. Make certain that water is being supplied to the core inlet.

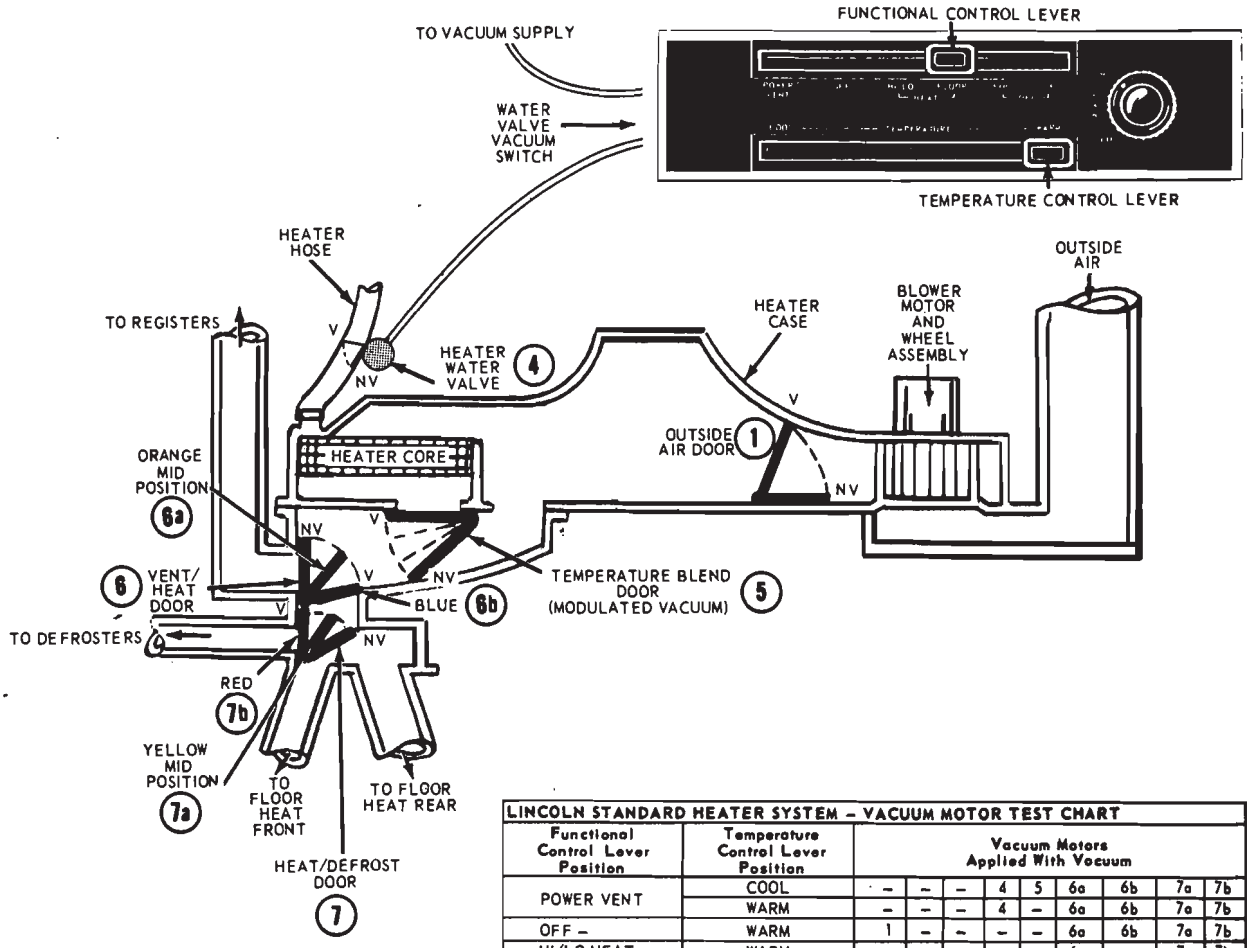
HEATER CONTROL SYSTEM TESTING—THUNDERBIRD AND CONTINENTAL MARK III

Diagnosis of heater problems should be separated into two areas, control system malfunctions and basic heater malfunctions. This phase of diagnosis and testing should be determined before any further diagnosis and testing is performed.

The first step in diagnosis of the control system is to determine which component or components are not operating for the specific control setting. For example: no air from the defroster outlets when the upper lever is at full defrost. The vacuum schematic (Fig. 15) and the vacuum application chart (Fig. 16) which covers the vacuum application should be examined.

Once a possible non-operating component is established, the testing of the control system should start at this point and work toward the vacuum source.

When testing the vacuum control system, a minimum of 10 inches of mercury vacuum should be available at all points where vacuum is applied. This can be checked with a Rotunda Fuel Pump Tester Gauge (ARE 345) and two Distributor Tester Hose Adapters (Marked Q) connected together with a coupling. This will allow the Fuel Pump Tester Gauge hose to be adapted to any other vacu-



LINCOLN STANDARD HEATER SYSTEM – VACUUM MOTOR TEST CHART

Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum								
POWER VENT	COOL	–	–	–	4	5	6a	6b	7a	7b
	WARM	–	–	–	4	–	6a	6b	7a	7b
OFF –	WARM	1	–	–	–	–	6a	6b	7a	7b
HI/LO HEAT	WARM	–	–	–	–	–	6a	–	7a	7b
FLOOR HEAT	WARM	–	–	–	–	–	–	–	7a	7b
FOG DEF	WARM	–	–	–	–	–	–	–	7a	–
ICE DEF	WARM	–	–	–	–	–	–	–	–	–

FIG. 17—Standard Heater Blend Air System Schematic—Lincoln Continental L1169-A

um hose or rubber connector in the vacuum systems.

Failure to maintain 10 inches of mercury vacuum during vacuum system tests could be caused by a bad hose connection, resulting in a vacuum leak. When checking for vacuum between two points, trace the hose along the entire routing to be sure it is not crossed with another hose and connected to the wrong connection.

STANDARD HEATER SYSTEM—LINCOLN CONTINENTAL

VACUUM MOTORS

The test chart in Fig. 17 will determine which vacuum motor should be functioning with applied vacuum during the various functional lever and temperature control lever positions at the standard heater control assembly on the instrument panel. Each vacuum control motor, and the door or valve it operates, has been assigned a code number and name that relates directly to its application in the system as follows;

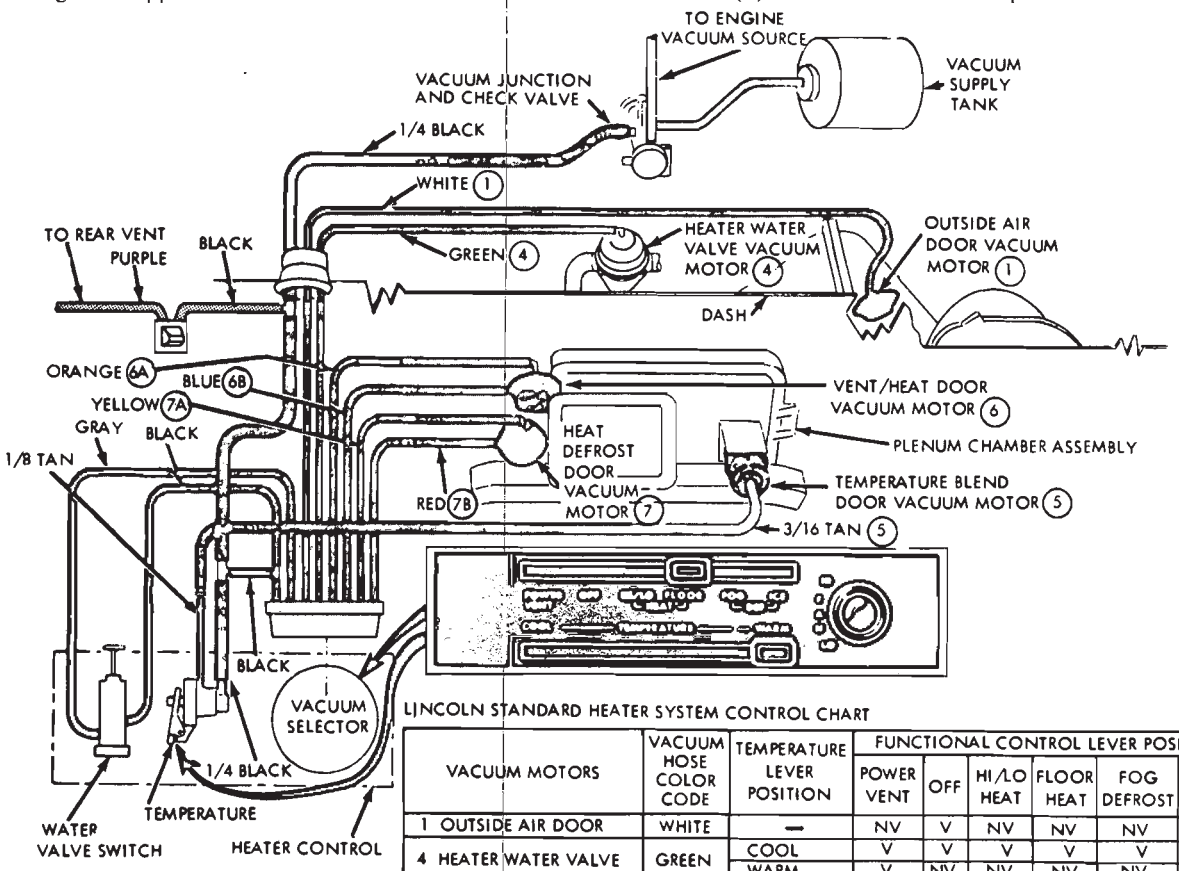
(1) Outside Air Door
(2) Not used in heating system
(3) Not used in heating system
(4) Heater Water Valve
(5) Temperature Blend Door
(6) Vent/Heat Door
(7) Heat/Defrost Door

The Outside Air Door (1) vacuum motor arm will travel its full length, closing the Outside Air Door (1), when vacuum is applied.

The Heater Water Valve (4) will close, when vacuum is applied, cutting off the water flow to the heater core.

A modulated vacuum from the temperature regulator valve (Figs. 9 and 18) is supplied to the Temperature Blend Door Vacuum Motor (5). The amount of vacuum increases as the temperature control lever is moved toward the COOL position. The Temperature Blend Door will block the air from the heater core when maximum vacuum is attained.

Where two vacuum lines are used to control one vacuum motor (Vent/Heat (6) and Heat/Defrost (7) Doors) the top vacuum line (a) will move the armature of the motor to the mid or half-way position. Vacuum must also be applied to the side vacuum line (b) to move the arm to the full vacuum position.



LINCOLN STANDARD HEATER SYSTEM CONTROL CHART

VACUUM MOTORS	VACUUM HOSE COLOR CODE	TEMPERATURE LEVER POSITION	FUNCTIONAL CONTROL LEVER POSITION					
			POWER VENT	OFF	HI/LO HEAT	FLOOR HEAT	FOG DEFROST	ICE DEFROST
1 OUTSIDE AIR DOOR	WHITE	—	NV	V	NV	NV	NV	NV
4 HEATER WATER VALVE	GREEN	COOL	V	V	V	V	V	V
		WARM	V	NV	NV	NV	NV	NV
5 TEMPERATURE BLEND DOOR	TAN	WARM	NV	NV	NV	NV	NV	NV
		MODERATE	PV	PV	PV	PV	PV	PV
		COOL	V	V	V	V	V	V
6A VENT/HEAT DOOR	(TOP) ORANGE	—	V	V	V	NV	NV	NV
6B VENT/HEAT DOOR	(SIDE) BLUE	—	V	V	NV	NV	NV	NV
7A HEAT/DEFROST DOOR	(TOP) YELLOW	—	V	V	V	V	V	NV
7B HEAT/DEFROST DOOR	(SIDE) RED	—	V	V	V	V	NV	NV

V - VACUUM NV - NO VACUUM PV - PARTIAL VACUUM

L1154-A

FIG. 18—Standard Heater Control System Vacuum Diagram—Lincoln Continental

CONTROL LEVER TESTS

Temperature Control Lever

With the temperature control lever (lower lever) in COOL position, the Temperature Blend Door (5) restricts air through the heater core (vacuum), the Heater Water Valve (4) is closed (vacuum) and cool air is discharged through the registers, floor outlets or defrosters. As the lever is moved toward WARM the water valve vacuum switch is released and the Heater Water Valve (4) is opened (no vacuum except when the function lever is in **POWER VENT** position), the Temperature Blend Door (5) is modulated (partial vacuum) allowing air through the heater core to be mixed with cool air and discharged through the heater plenum outlets. In the **WARM** position (no vacuum), all the air passes through the heater core to provide maximum discharge air temperature. Refer to Vacuum Motor Test Chart, Fig. 17, and Vacuum Diagram, Fig. 18.

Functional Control Lever

In **POWER VENT COOL** position the Heater Water Valve (4) is closed (vacuum), the Vent/Heat Door (6) in the plenum chamber restricts air to the floor outlets (vacuum) and the air is discharged through the registers (Fig. 17).

In **OFF** position the Outside Air Door (1) is closed with vacuum, and the blower is off. The door is open (no vacuum) in all other control positions and electrical current is supplied to the four position blower switch through a micro-switch (blower cut-off switch) on the control assembly (Fig. 9).

In **HI/LO HEAT** position the Vent/Heat Door (6) is in the mid position (6a vacuum), the Heat/Defrost Door (7) is in the heat position (7a and 7b vacuum), and air is discharged both through the registers and floor outlets.

In **FLOOR HEAT** position the Vent/Heat Door (6) restricts air to the registers (no vacuum), the Heat/Defrost Door (7) is in the heat position (7a and 7b vacuum) and air is discharged through the floor outlets in the air distribution duct and through the rear floor outlets.

In **DEFOG** position the Vent/Heat Door (6) restricts air to the registers (no vacuum) the Heat/Defrost Door (7) is in the mid position (7a vacuum) and air is discharged both through the defroster nozzles and floor outlets.

In **DEICE** position the Heat/Defrost Door (7) restricts air to the floor outlets (no vacuum) and all air is discharged through the defroster nozzles with only a bleed to the floor.

BLOWER MOTOR CONTROLS

A blower cut-off (Micro) switch, a four position blower control switch, the blower relay and the blower resistor assembly are combined to provide four blower speeds to control air volume in all functional control lever positions except **OFF** (Fig. 19).

When the functional control lever is moved from the **OFF** position the blower cut-off (Micro) switch closes providing electrical current to the blower control switch selector arm and also the No. 4 spade pin of the blower resistor assembly. The electrical current then flows through the three resistors to the No. 1 spade pin of the blower resistor assembly.

The No. 1 spade pin of the blower resistor assembly is connected to the normally closed side of the blower relay contacts. Electrical current to the blower motor assembly is transmitted through the normally closed side of the blower relay contacts in all blower control switch positions except **HIGH.**

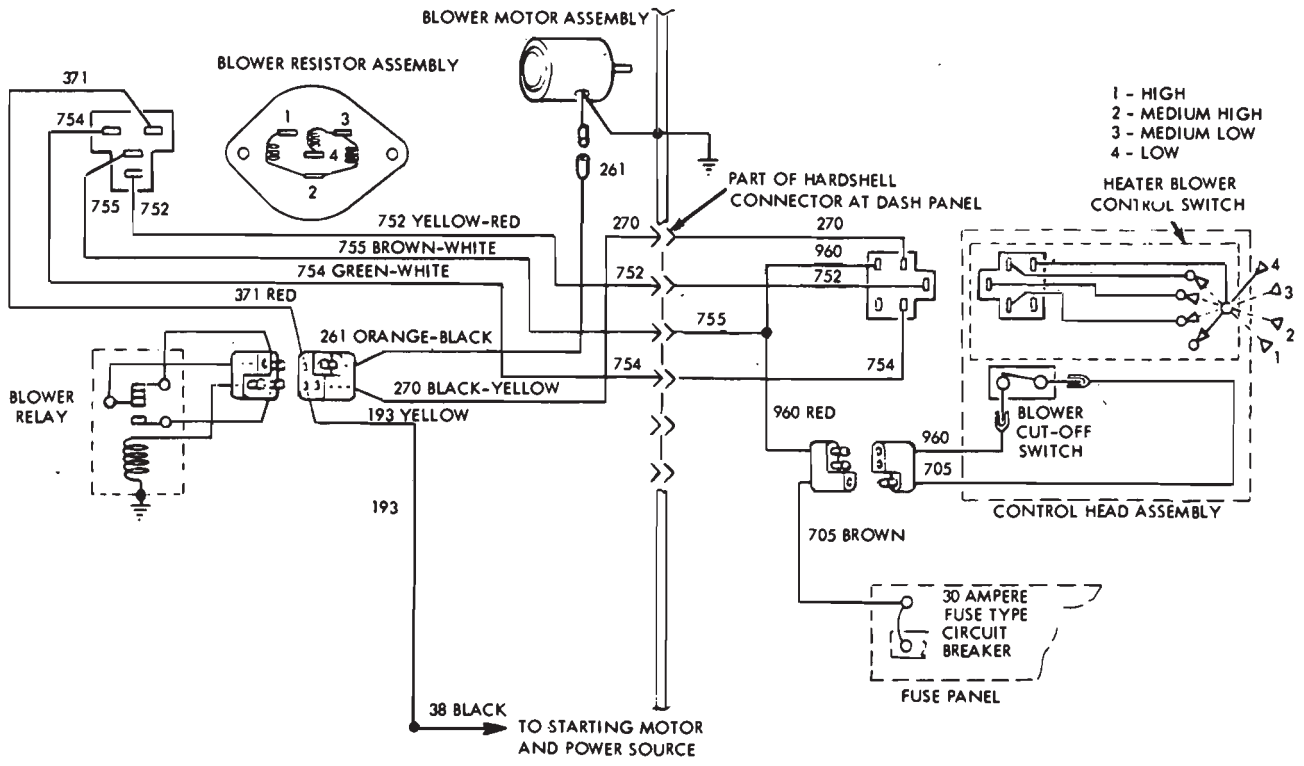


FIG. 19—Standard Heater Electrical Schematic—Lincoln Continental

In the **LOW** blower control switch position, electrical current flow is through all three resistors of the blower resistor assembly. The electrical current is provided directly from the blower cut-off switch and not the blower control switch.

In the **MED. LOW** blower control switch position, electrical current comes from the blower control switch to the No. 3 spade pin of the blower resistor assembly and also from the blower cut-off switch to the No. 4 spade pin. In this position the resistor between the No. 3 and No. 4 spade pins of the blower resistor assembly is not being used because the electrical current will flow through the least amount of circuit resistance.

In the **MED. HIGH** blower control switch position, electrical current comes from the blower control switch to the No. 2 spade pin of the blower resistor assembly and also from the blower cut-off switch to the No. 4 spade pin. In this position, only the resistor between the No. 2 and No. 1 spade pins is being used in the circuit.

When the blower control switch is in the **HIGH** position, the electrical current from the blower control switch is then applied to the coil of the blower relay. The relay coil then pulls the moveable blower motor assembly contact away from the blower resistor assembly contact and applies it directly to the starting motor and power source. The electrical current is then supplied directly to the blower motor assembly from the battery with the least amount of circuit resistance.

3 ADJUSTMENTS

SAFETY PRECAUTIONS—ALL MODELS

Whenever components in the engine compartment or instrument panel areas are being serviced, the battery ground cable must be removed to eliminate the possibility of electrical shorts, burned-up wiring, and dangerous fires. Extreme care must be exercised when performing electrical tests where the battery must be connected to operate the system.

Carbon monoxide is colorless, odorless and dangerous. If it is necessary to operate the engine with the car in a closed area such as a garage, always use an exhaust collector to vent the exhaust gasses outside the closed area.

HEATER HOSE ROUTING—ALL MODELS

Care must be taken when servicing the hoses to insure a smooth kink free installation for maximum heating (Figs. 20 through 26).

HEATER HOSE REMOVAL AND INSTALLATION—ALL MODELS

To replace a heater hose, drain the coolant, remove the hose. Cut a new hose to the same length as the old hose and install the hose. Then, replace the coolant. **Make certain that the heater hoses do not come in contact with any part of the exhaust system.**

After the coolant has been replaced, bleed the air from the heater core if necessary.

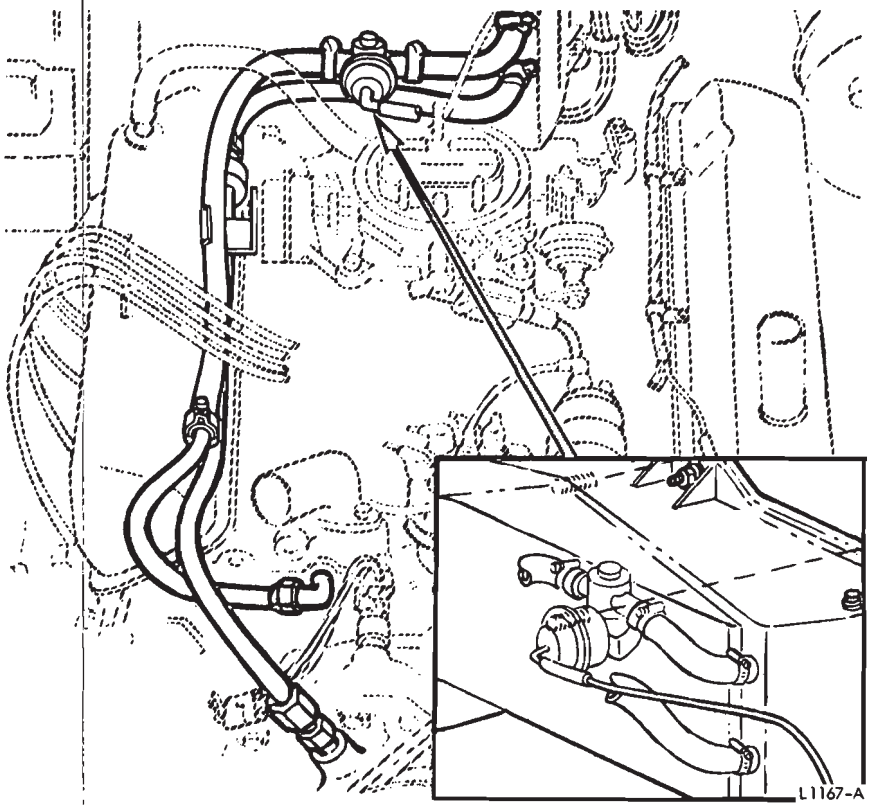


FIG. 20—Heater Hose Routings and Water Valve Installation—Continental Mark III

BLEEDING AIR FROM HEATER CORE—ALL MODELS

Remove the hose at the outlet connection of the heater core (hose that leads to the water pump). Allow any trapped air to flow out. When a continuous flow of coolant is obtained, connect the hose to the core.

TEMPERATURE CONTROL CABLE ADJUSTMENT—FORD, MERCURY AND METEOR

1. Disconnect the battery ground cable and remove the instrument panel pad (Group 47) if equipped with A/C.
2. Move the temperature control lever to the COOL position.

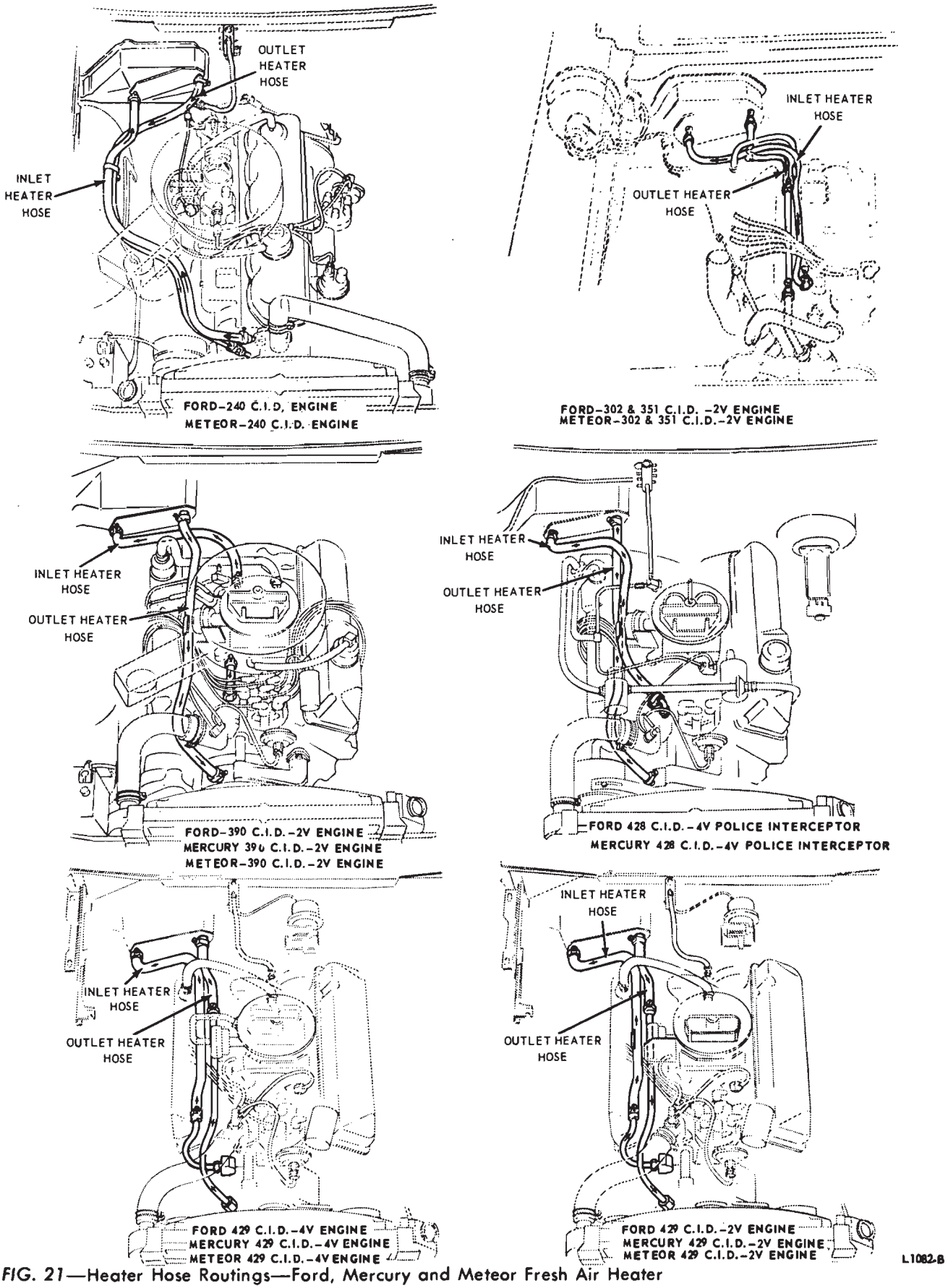


FIG. 21—Heater Hose Routings—Ford, Mercury and Meteor Fresh Air Heater

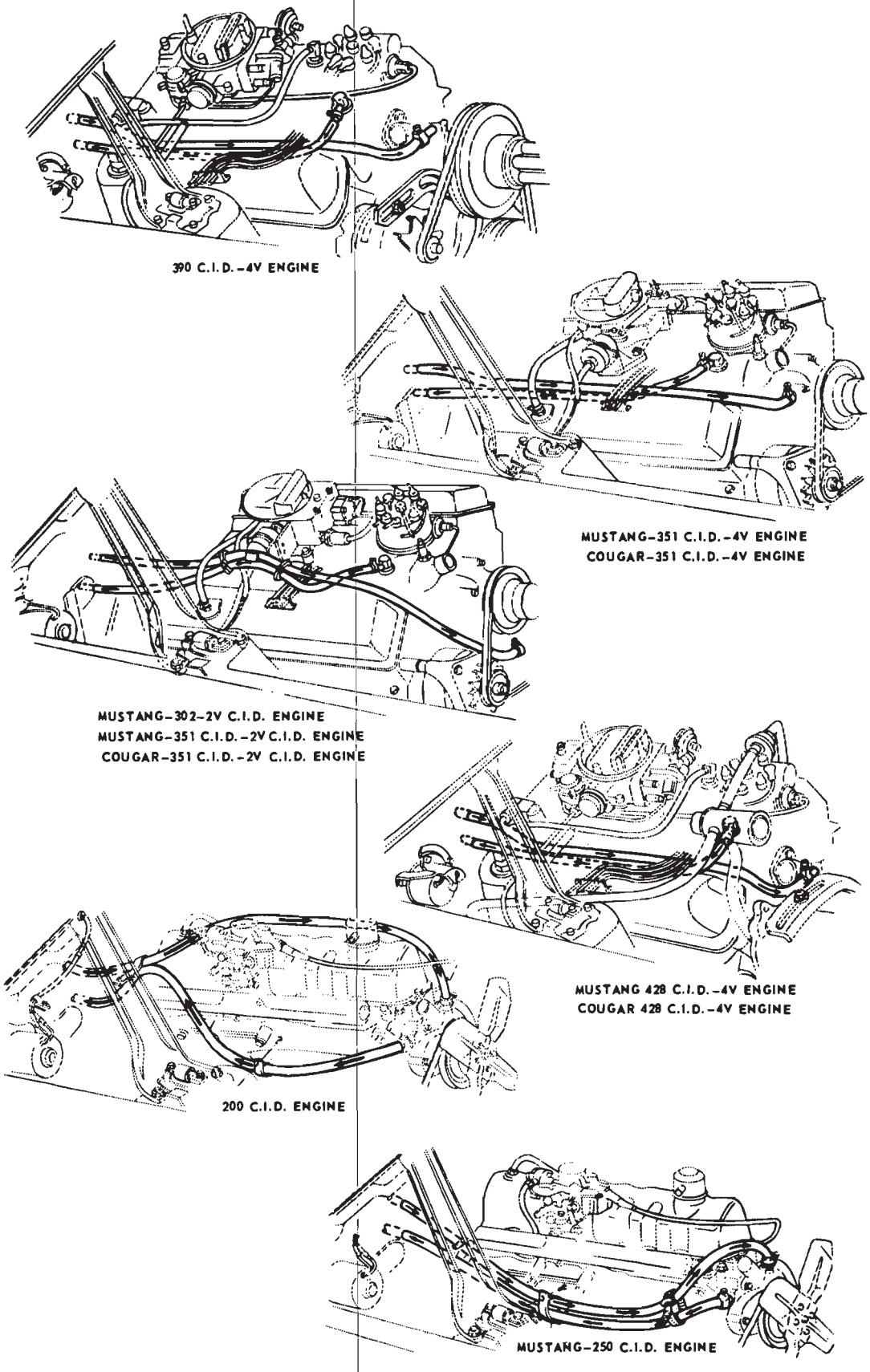


FIG. 22—Heater Hose Routings—Mustang and Cougar Fresh Air Heater

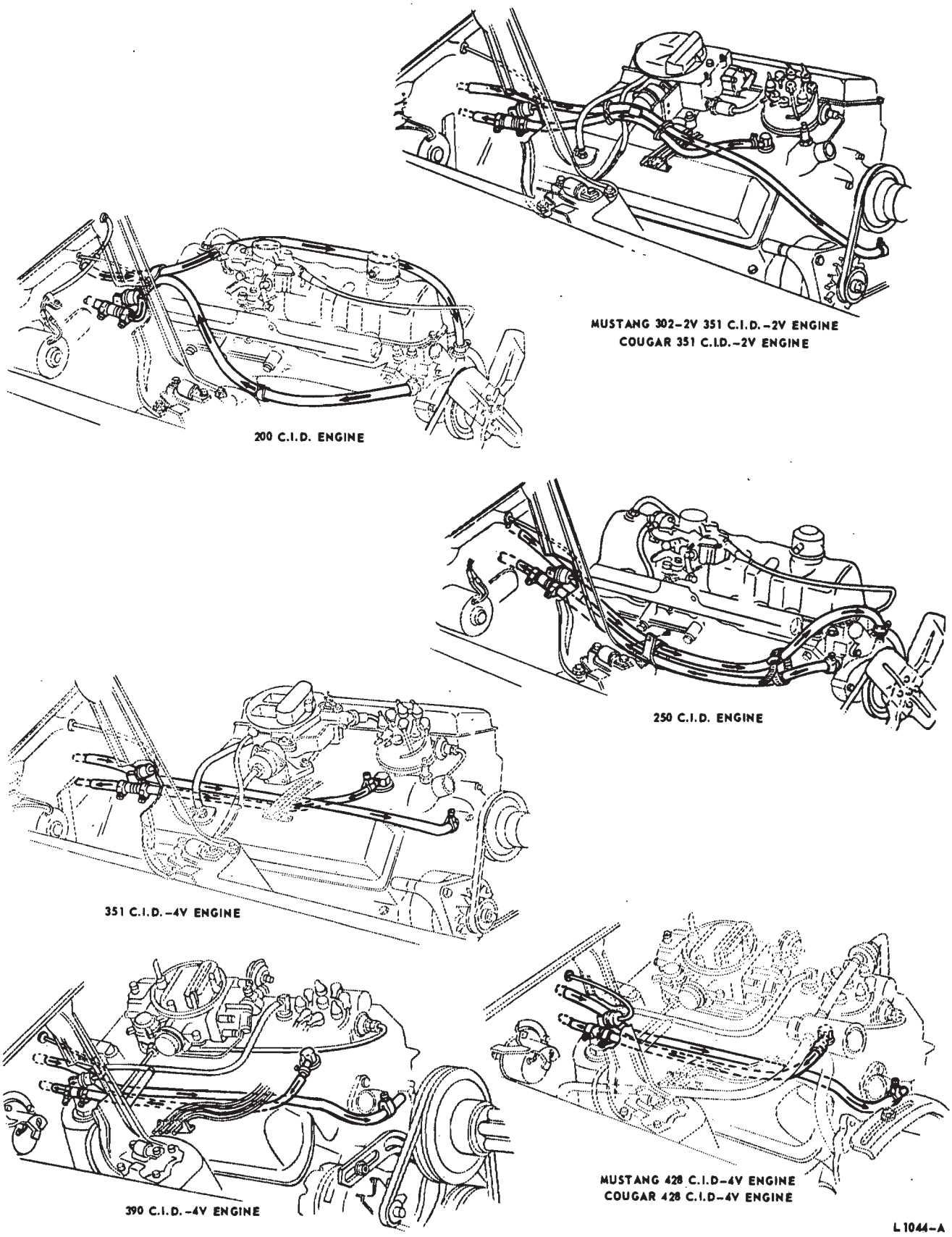


FIG. 23—Heater Hose Routings—Mustang and Cougar Power Ventilation Heater

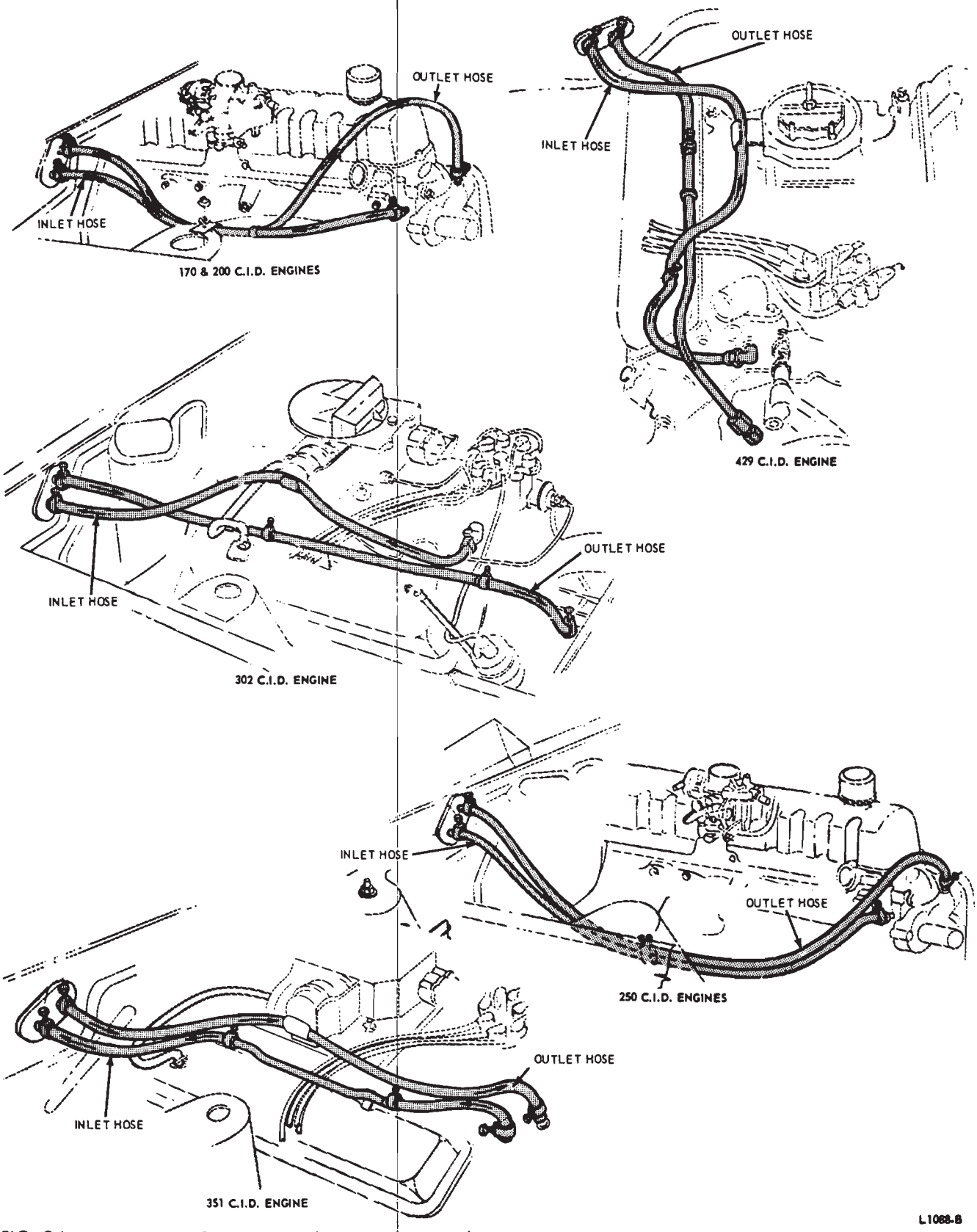


FIG. 24—Heater Hose Routings—Falcon, Fairlane and Montego

3. Adjust the control cable turnbuckle so that the control lever stops 1/8 inch away from the end of the control assembly slot.
4. Install the instrument panel pad (Group 47), and connect the battery cable.

HEAT-DEFROST CONTROL CABLE ADJUSTMENT—FORD, MERCURY AND METEOR

1. Disconnect the battery ground cable and remove the instrument panel pad (Group 47), if equipped with A/C.
2. Move the heat-defrost (upper) lever to the OFF position.
3. Adjust the control cable turnbuckle so that the control lever stops 1/8 inch away from the end of the control assembly slot.
4. Install the instrument panel pad (Group 47) and connect the battery cable.

HEATER CONTROL CABLE ADJUSTMENTS—MUSTANG AND COUGAR

TEMPERATURE CONTROL CABLE ADJUSTMENT

1. Loosen the cable retaining clip at the top of the heater assembly.
2. Move the temperature control (lower) lever to the right stop. Then, move the lever 1/8-inch away from the stop.
3. Move the blend air door crank arm toward the cable retaining clip bracket and tighten the retaining clip.

AIR DOOR CONTROL CABLE ADJUSTMENT

1. Loosen the cable retaining clip at the front of the heater plenum.
2. Move the control upper lever to the heat position detent.
3. Position the air door crank arm between the two dots on the plenum chamber and tighten the cable retaining clip.

HEATER CONTROL CABLE ADJUSTMENTS—FALCON, FAIRLANE, MONTEGO AND MAVERICK

TEMPERATURE

Adjust the temperature Bowden cable at the heater case (Fig. 1), with the temperature door crank arm in the far left position and the temperature control lever on HI. Provide ap-

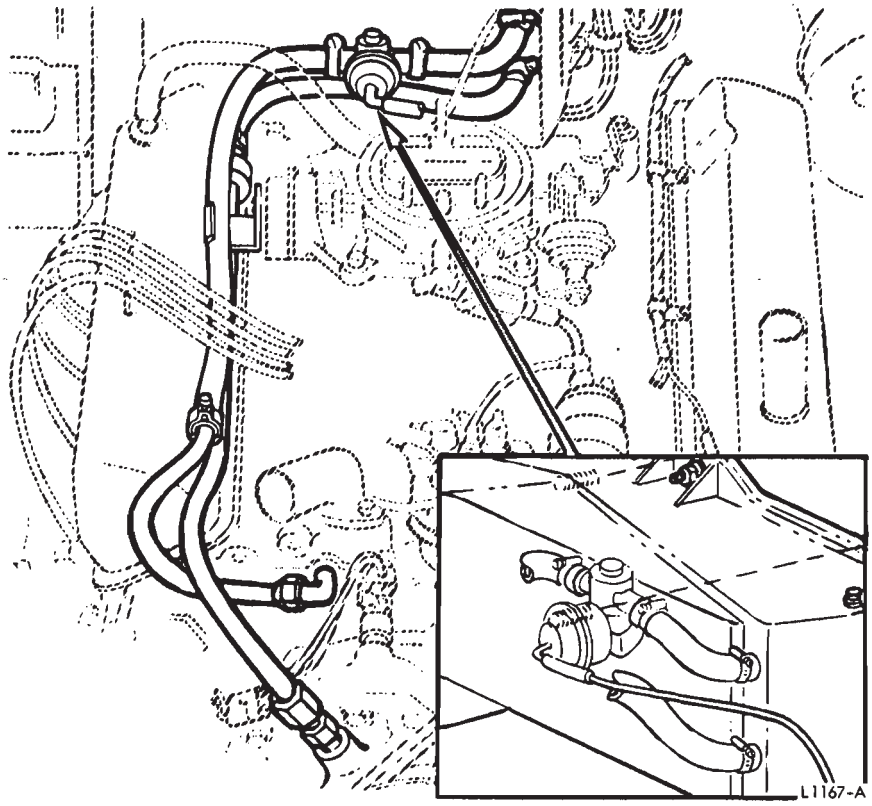


FIG. 25—Heater Hose Routings—Thunderbird

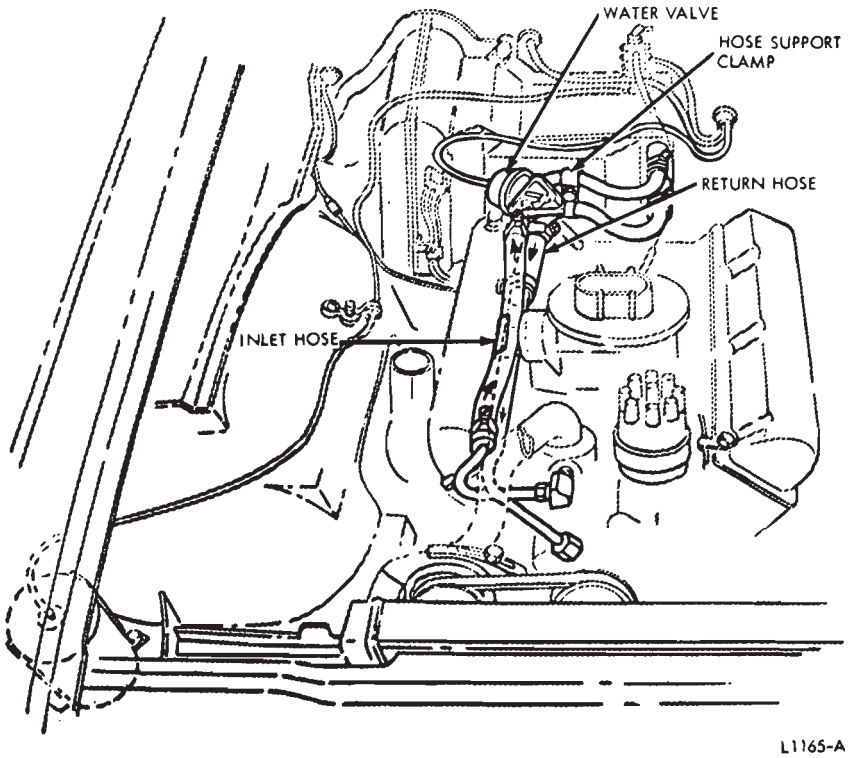


FIG. 26—Heater Hose Routings—Lincoln Continental

proximately 1/8 inch clearance between the lever and edge of the slot for proper adjustment.

HEAT AND DEFROST

Adjust the heat-defrost Bowden cable at the heater case by aligning the crank arm (Fig. 1), with the locating dart directly below the crank arm on the case. With the crank arm in this position, the heat-defrost door is in a horizontal position for maximum heat.

The Bowden cables can also be adjusted at the control assembly.

VACUUM MOTOR ADJUSTMENT—ALL MODELS

The vacuum motors are adjustable for proper air door operations.

The vacuum motors are adjusted so that the actuator return springs are preloaded for about 1/8 inch travel of the motor connecting link with no vacuum applied. Perform the adjustment as follows:

1. Loosen the vacuum motor attaching screws or nuts.
2. Move the motor until the preload indicator is flush with the motor body. The air door must be in its normal position with no vacuum applied.
3. Tighten the bracket attaching screws or nuts and check the operation of the door.

TEMPERATURE CONTROL CABLE (BLEND DOOR)—THUNDERBIRD AND CONTINENTAL MARK III

A turnbuckle adjustment on the temperature control cable housing is provided to insure positive seal between the blend door and the inner case. Adjust the turnbuckle so that the TEMP lever is approximately 1/8-inch from each end of its slot when moving the lever to the maximum right and left positions.

LINCOLN CONTINENTAL VACUUM MOTORS

OUTSIDE AIR DOOR MOTOR (1)

The outside air door vacuum motor is a two position motor and can be adjusted by means of an adjusting screw and slot on the two piece actuating shaft assembly (Fig. 27). **The air door must be in its normal (open) position with no vacuum applied.**

1. Loosen the adjusting screw.

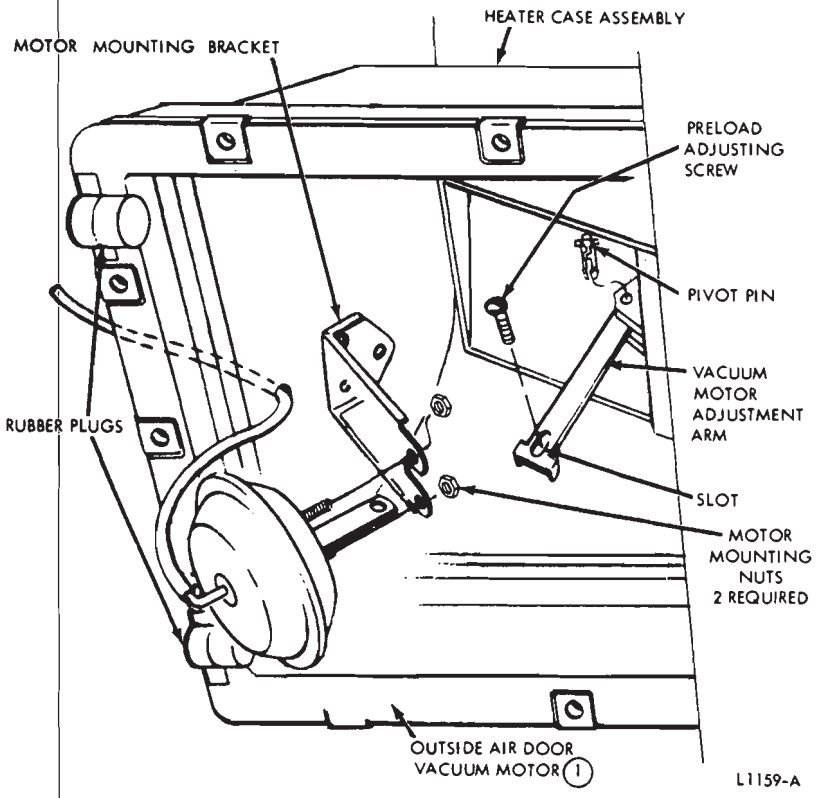


FIG. 27—Standard Heater Outside Air Door Assembly—Lincoln Continental

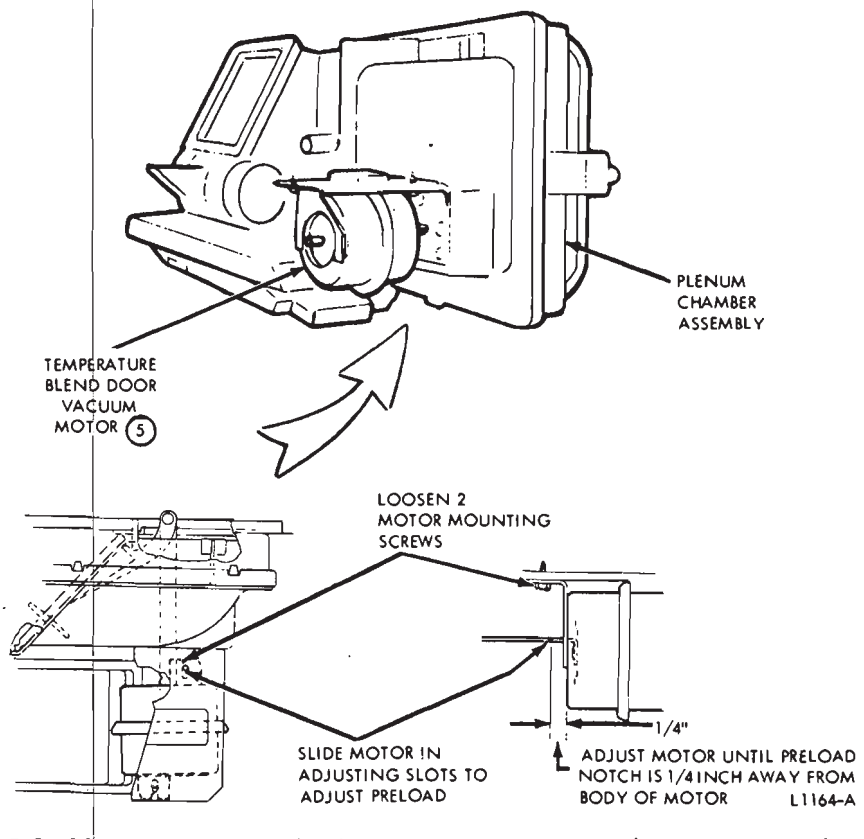


FIG. 28—Temperature Blend Door Vacuum Motor Adjustment—Lincoln Continental

2. Hold the air door in the normal (open) position and adjust the shaft so that the preload indicator (notch) is flush with the motor body.
3. Tighten the adjusting screw.

TEMPERATURE BLEND DOOR MOTOR (5)

The Temperature Blend Door vacuum motor (Fig. 28) is a modulated motor and can be adjusted by means of two adjusting slots in the motor mounting bracket. **The Temperature Blend Door (5) must be in its normal (heat) position with no vacuum applied.**

2. Move the motor forward on the mounting bracket until the preload notch nearest the motor is 1/4 inch away from the motor body.
3. Tighten the mounting screws.

HEATER WATER VALVE (4), VENT/HEAT DOOR (6) AND HEAT/DEFROST DOOR (7) MOTORS

These vacuum motors cannot be adjusted.

ELECTRICAL SYSTEM

Refer to the electrical schematic (Fig. 19).

4 FORD, MERCURY AND METEOR REMOVAL AND INSTALLATION

CONTROL ASSEMBLY—FORD AND METEOR

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the instrument cluster mask (Group 33).
4. Disconnect the wire plug connector from the blower switch.
5. Disconnect the defogger or heated backlite switch wires at the multiple connector if equipped with a defogger.
6. Disconnect the Bowden cables from the control assembly (Fig. 29).
7. Disconnect the illumination light wire at the connector.
8. Remove three control assembly attaching screws, and pull the control assembly out from the front of the instrument panel.

INSTALLATION

1. Position the control assembly to the instrument panel and install the three attaching screws.
2. Connect the illumination light wire, blower and defogger or heated backlite switch wires.
3. Connect the Bowden cables to the control assembly.
4. Install the instrument cluster mask (Group 33).
5. Install the instrument panel pad (Group 47), and connect the battery cable.

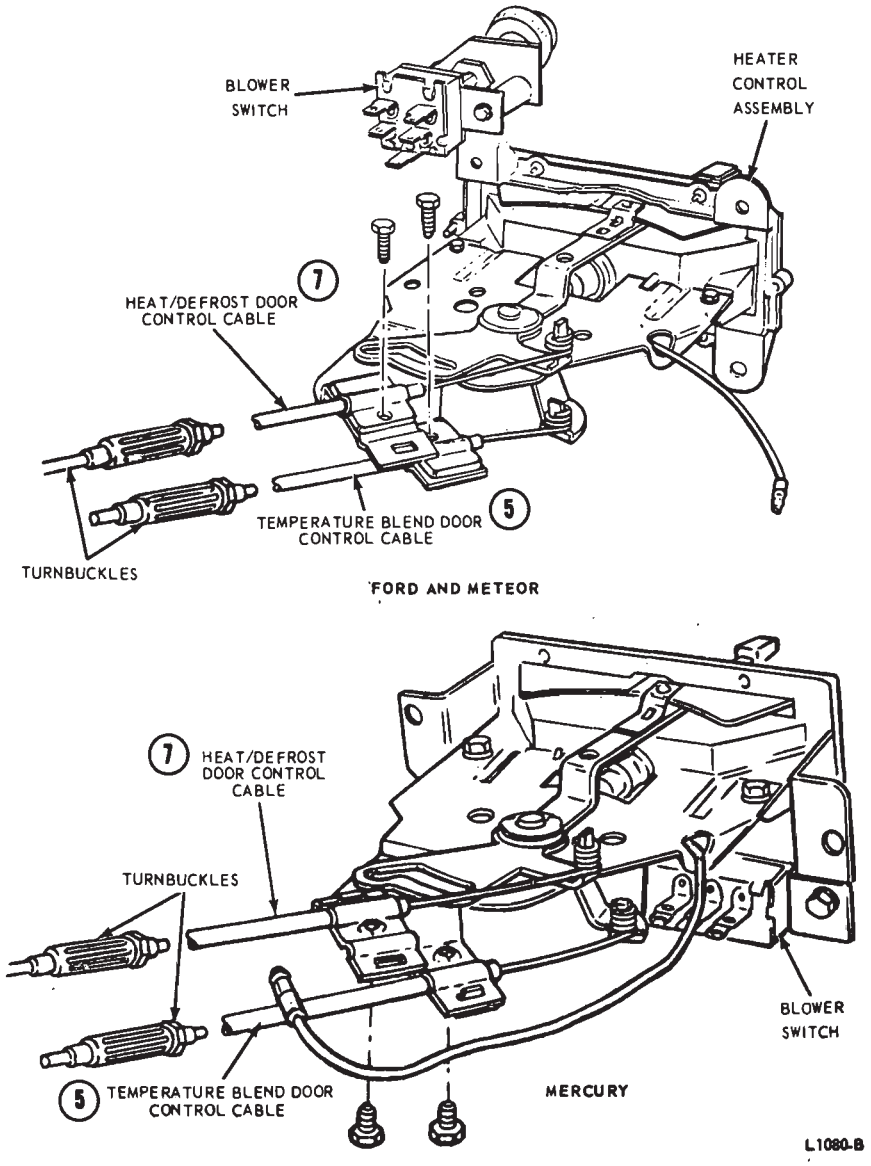


FIG. 29—Heater Controls—Rear View—Ford, Mercury and Meteor

CONTROL ASSEMBLY—MERCURY

REMOVAL

1. Disconnect the battery ground cable.
2. Pull the blower knob and the defogger or heated backlite knob off the switches.
3. Remove the left air vent knob and the brake release knob. Remove the cable retaining nuts and lower both cables.
4. Remove two screws attaching the control assembly to the instrument panel and pull the control away from the instrument panel.
5. Disconnect the wire plug connectors from the blower switch and the defogger switch. Disconnect the illumination light wire.
6. Disconnect the Bowden cables from the control assembly (Fig. 29) and remove the control assembly.

INSTALLATION

1. Connect the Bowden cables, illumination light wire and the plug connectors to the control assembly.
2. Position the control assembly to the instrument panel and install the two attaching screws.
3. Install the blower and defogger or heated backlite switch knobs.
4. Install the left air vent and brake release cables and knobs.
5. Connect the battery ground cable.

HEATER TEMPERATURE CONTROL CABLE—FORD AND METEOR

REMOVAL

1. Remove the instrument panel pad (Group 47).
2. Disconnect the cable from the control assembly.
3. Remove the glove compartment door.
4. Remove the glove compartment liner attaching screws and pull the liner forward.
5. Disconnect the cable from the heater temperature blend door arm and the dash panel and remove the Bowden cable.

INSTALLATION

1. Position the Bowden cable in the vehicle, and connect the cable to the dash panel and the temperature blend door.
2. Connect the cable to the control assembly. Adjust the cable for a good seal between the blend door and the heater housing when the control is set at the HEAT position.
3. Place the glove compartment liner into position and install the attaching screws.
4. Install the glove compartment door.
5. Install the instrument panel pad (Group 47).

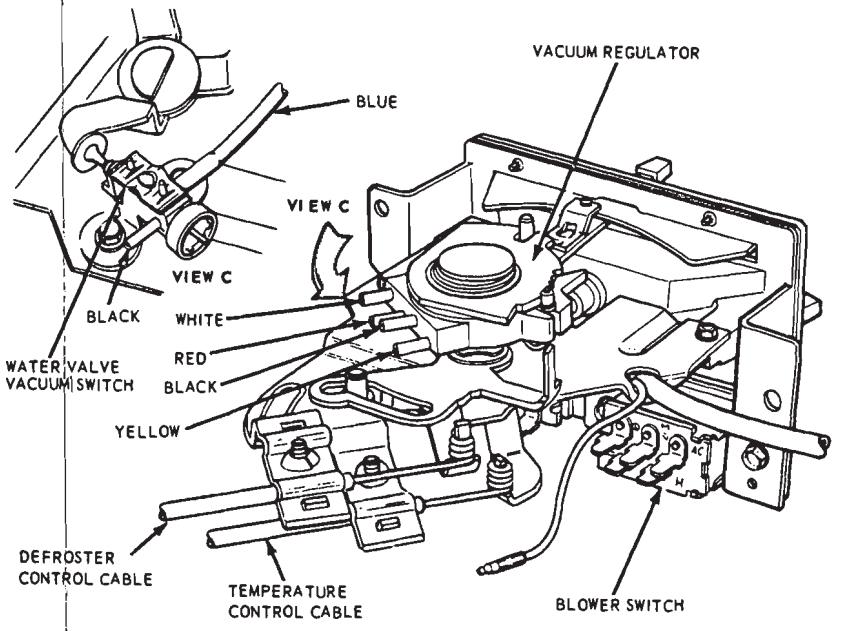


FIG. 30—Control Assembly—Mercury

TEMPERATURE CONTROL CABLE—MERCURY

1. Disconnect the control cable at the control assembly.
2. Remove the glove compartment liner.
3. Disconnect the control cable at the temperature air door, and remove the cable.
4. Position the control cable under the instrument panel and connect the cable at the temperature air door.
5. Connect the cable to the control assembly, and adjust the cable at the turnbuckle.
6. Install the glove compartment liner.

HEAT-DEFROSTER CONTROL CABLE—FORD AND METEOR

1. Remove the instrument panel pad (Group 47).
2. Disconnect the cable from the control assembly.
3. Disconnect the cable from the heater housing and the heat-defroster door arm, and remove the cable.
4. Connect the cable to the heater housing and the heat-defrost door arm.
5. Connect the cable to the control assembly and, adjust the cable at the turnbuckle for full travel of the heat-defrost door.
6. Install the instrument panel pad (Group 47).

HEAT-DEFROST CONTROL CABLE—MERCURY

1. Remove the screw and clip retaining the cable to the control assembly.
2. Disconnect the cable at the heat-defrost air door, and remove the control cable.
3. Position the cable to the control assembly, and install the clip and retaining screw (Figs. 29 and 30).
4. Connect the cable at the heat-defrost air door.
5. Adjust the control cable at the turnbuckle (Section 3).

BLOWER SWITCH—HEATER OR HEATER-A/C—FORD AND METEOR

REMOVAL

1. Remove the instrument panel pad (Group 47).

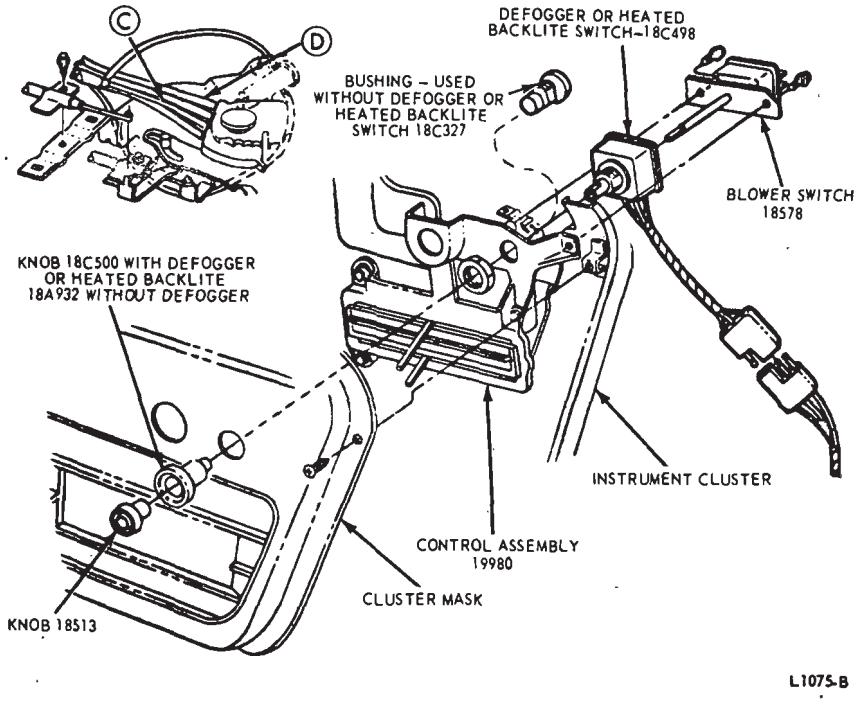


FIG. 31—Control Assembly—Ford and Meteor

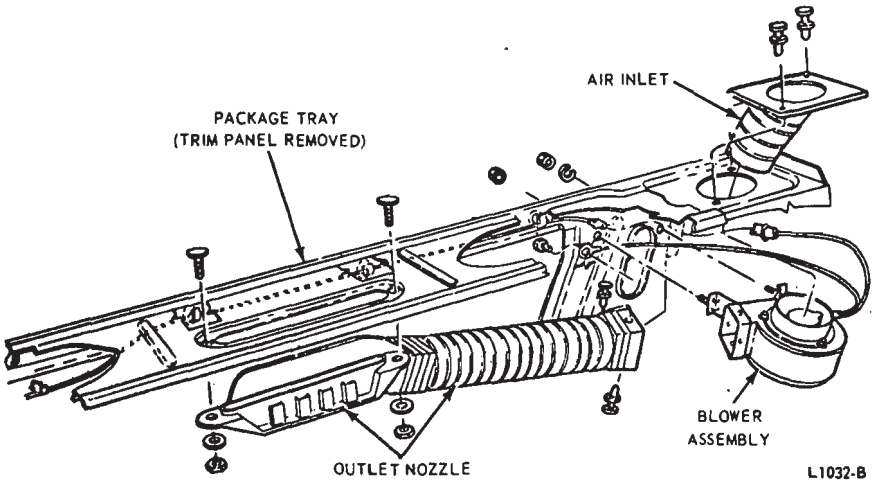


FIG. 32—Remote Defogger Disassembled

2. Remove the blower switch knobs.
3. Disconnect the wire plug connector from the blower switch.
4. Remove two switch attaching screws and remove the blower switch (Fig. 31).

INSTALLATION

1. Position the blower switch to the control assembly, and install the two attaching screws.
2. Connect the wire plug connector to the blower switch.
3. Install the blower switch knobs.
4. Install the instrument panel pad (Group 47).

DEFOGGER OR HEATED BACKLITE SWITCH—FORD AND METEOR

REMOVAL

1. Remove the instrument panel pad (Group 47).
2. Remove the instrument cluster mask (Group 33).
3. Disconnect the wire connector from the heater or heater-A/C blower switch.
4. Remove two screws attaching the heater or heater-A/C blower switch to the heater or heater-A/C control assembly, and remove the switch (Fig. 31).

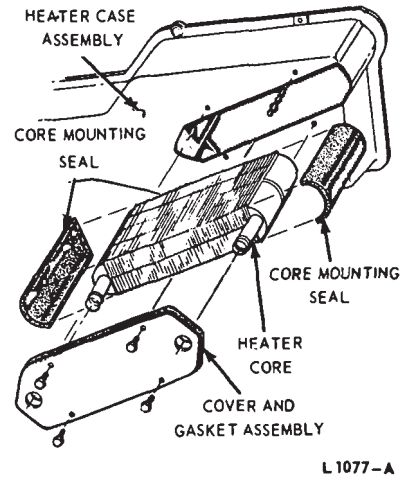


FIG. 33—Heater Core—Ford, Mercury and Meteor

5. Remove the nut retaining the defogger or heated backlite switch to the heater or heater-A/C control assembly (Fig. 31). Disconnect the wire connector and remove the switch.

INSTALLATION

1. Position the defogger or heated backlite switch to the control assembly and install the retaining nut. Connect the wire connector.
2. Slide the blower switch shaft through the defogger or heated backlite switch and install the two attaching screws.
3. Connect the wire plug to the blower switch.
4. Install the instrument cluster mask (Group 33).
5. Install the instrument panel pad (Group 18).

BLOWER SWITCH—HEATER, HEATER-A/C OR DEFOGGER—MERCURY

REMOVAL

1. Disconnect the battery ground cable.
2. Pull the knob from the blower switch.
3. Disconnect the wire plug connector from the blower switch.
4. Remove two screws attaching the switch to the control assembly (Fig. 32) and remove the switch.

INSTALLATION

1. Position the switch to the control assembly and install the two attaching screws.
2. Connect the wire plug connector

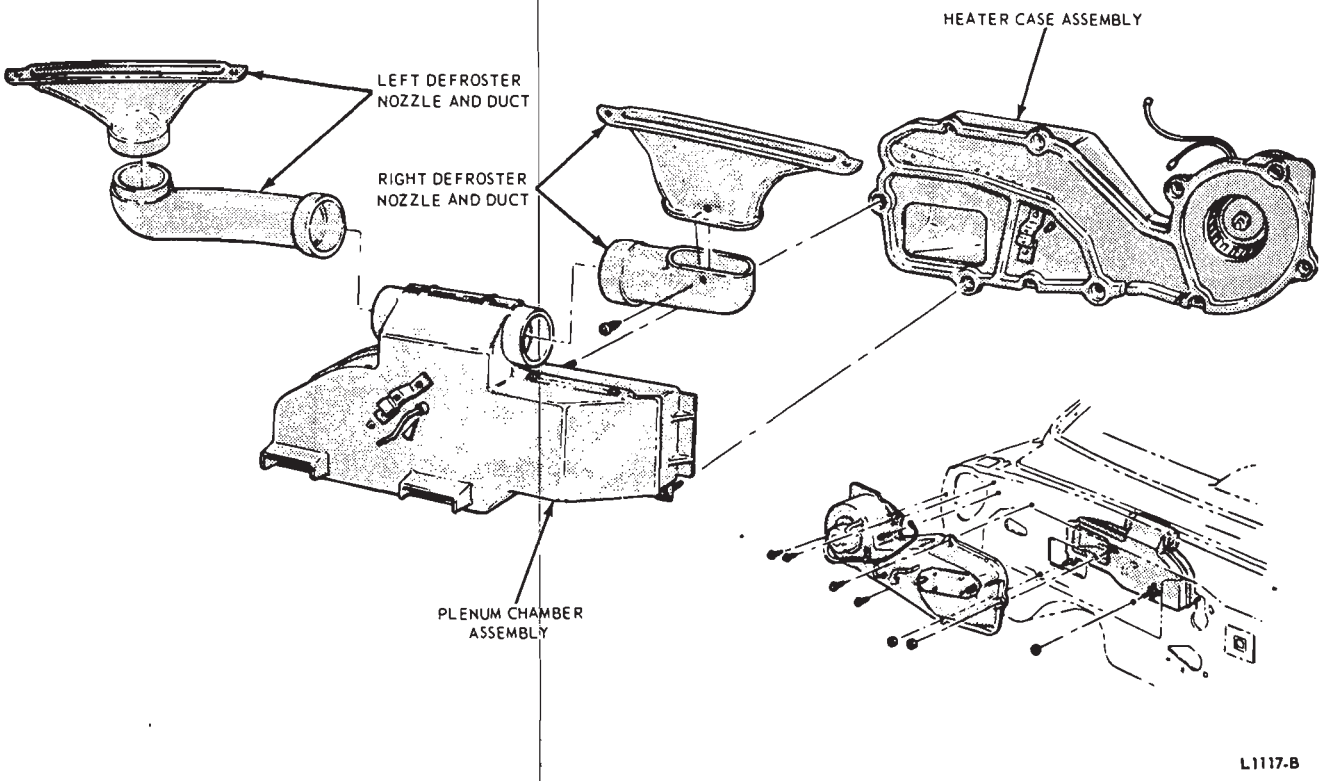


FIG. 34—Defroster Nozzle and Plenum Chamber Installation—Ford, Mercury and Meteor

to the blower switch.

3. Install the knob on the blower switch.

4. Connect the battery ground cable.

BLOWER RESISTOR—FORD MERCURY AND METEOR

1. Open the hood and disconnect the multiple plug connector from the resi(tor.

2. Remove two resistor attaching plastic rivets and remove the resistor from the heater housing.

3. Position the resistor to the heater housing and install the two attaching plastic rivets.

4. Connect the plug connector to the resistor.

DEFOGGER MOTOR—FORD, MERCURY AND METEOR

1. From inside the luggage compartment, remove the defogger motor mounting nuts, and disconnect the motor wire.

2. From inside the passenger compartment, pry up the grille assembly and remove the grille. (On Mercury models with a drop backlite, remove the package tray trim panel).

3. Lift the defogger from the package tray, remove the ground wire retaining screw, and remove the defogger assembly.

4. Remove the clips and separate the motor and wheel from the housing.

5. Transfer the blower wheel to the new motor, and install the motor and wheel in the housing.

6. Position the defogger to the package tray, install the ground lead, and route the power lead through the hole in the tray.

7. Position the defogger in the tray, and install the grille (package tray on Mercury with a drop backlite).

8. Install the defogger mounting nuts from inside the luggage compartment, and connect the power lead.

9. Check the operation of the defogger.

REMOTE DEFOGGER BLOWER MOTOR

Remove the rear seats. In the trunk, disconnect the inlet and outlet hoses from the blower (Fig. 32). Then, disconnect the blower wires and retaining nuts and remove the motor.

REMOTE DEFOGGER OUTLET NOZZLE

Disconnect the nozzle hose at the blower housing. Then, remove 2 nuts and washers attaching the nozzle to the package tray and remove the nozzle (Fig. 32).

REMOTE DEFOGGER AIR INLET

Remove the rear seats and the package tray trim panel. Then, remove the 2 air inlet retainers and lift the inlet from the package tray (Fig. 32).

HEATER CORE—FORD, MERCURY AND METEOR

Drain the cooling system and disconnect the heater hoses from the heater core. Then, remove the core cover and gasket, and remove the heater core (Fig. 33).

BLOWER AND MOTOR—FORD, MERCURY AND METEOR

REMOVAL

1. Scribe location marks on the

right hood, hinge and mounting panel and remove the hood and right hood hinge.

2. Disconnect the right fender from the fender apron, cowl side panel, front end sheet metal and remove the fender.

3. Disconnect the blower motor lead and ground wires.

4. Remove the blower motor mounting plate screws and remove the motor and wheel assembly.

INSTALLATION

1. Apply body sealer between motor mounting plate and the housing before installing the assembly.

2. Position the blower motor and wheel assembly in the housing opening and install the four mounting screws.

3. Connect the blower motor lead and ground wires.

4. Position the right fender and connect the front sheet metal, cowl side panel and fender apron.

5. Install the right hood hinge and the hood using the scribed lines for locating.

DEFROSTER NOZZLES—FORD, MERCURY AND METEOR

Remove the instrument panel pad (Group 47). Loosen the instrument panel brace if the left nozzle is to be removed. Then, remove the nozzle attaching screws and lift the nozzle out of the defroster duct (Fig. 34).

5 MUSTANG AND COUGAR REMOVAL AND INSTALLATION

BLOWER SWITCH—MUSTANG AND COUGAR

REMOVAL

1. Disconnect the battery ground cable.

2. Remove the radio from the vehicle (Group 35).

3. Working through the radio opening, disconnect the wire connector plug from the blower switch.

4. Remove the switch knob.

5. Remove the switch retaining screw and remove the switch.

INSTALLATION

1. Position the switch to the control assembly and install the retaining screw.

2. Install the switch knob.

3. Connect the wire connector plug to the blower switch.

4. Install the radio (Group 35).

5. Connect the battery ground cable.

WATER CONTROL VALVE—MUSTANG AND COUGAR

REMOVAL

1. Drain the cooling system and remove the carburetor air cleaner.

2. Disconnect the coolant hoses and vacuum hose at the water valve, and remove the valve.

INSTALLATION

1. Connect the coolant hoses and vacuum hose to the water valve.

2. Fill the cooling system and install the carburetor air cleaner.

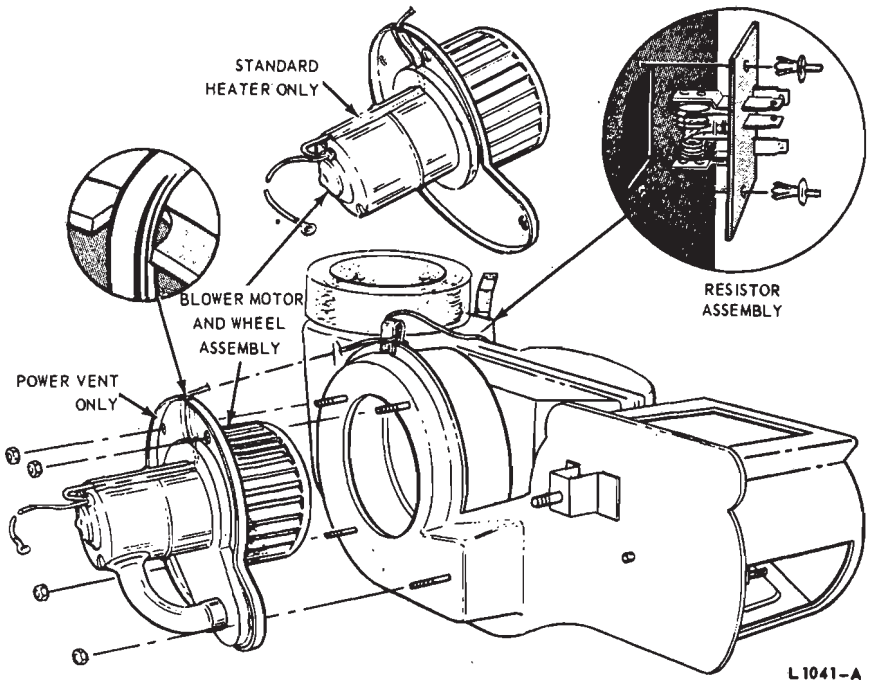


FIG. 35—Heater Blower and Motor Installation—Mustang and Cougar

BLOWER RESISTOR—MUSTANG AND COUGAR

1. Disconnect the wires from the resistor which is located under the instrument panel (Fig. 35).

2. Remove the two snap-in retainers attaching the resistor to the heater housing and remove the resistor.

3. Position the resistor to the heater housing and install the two snap-in retainers.

4. Connect the wires to the resistor and check the operation of the blower.

BLOWER AND MOTOR—MUSTANG AND COUGAR

REMOVAL

1. Remove the heater assembly from the vehicle as outlined in this section.

2. Disconnect the blower motor wire from the resistor.

3. Remove four blower and motor mounting plate nuts, and remove the blower and motor from the heater assembly (Fig. 35).

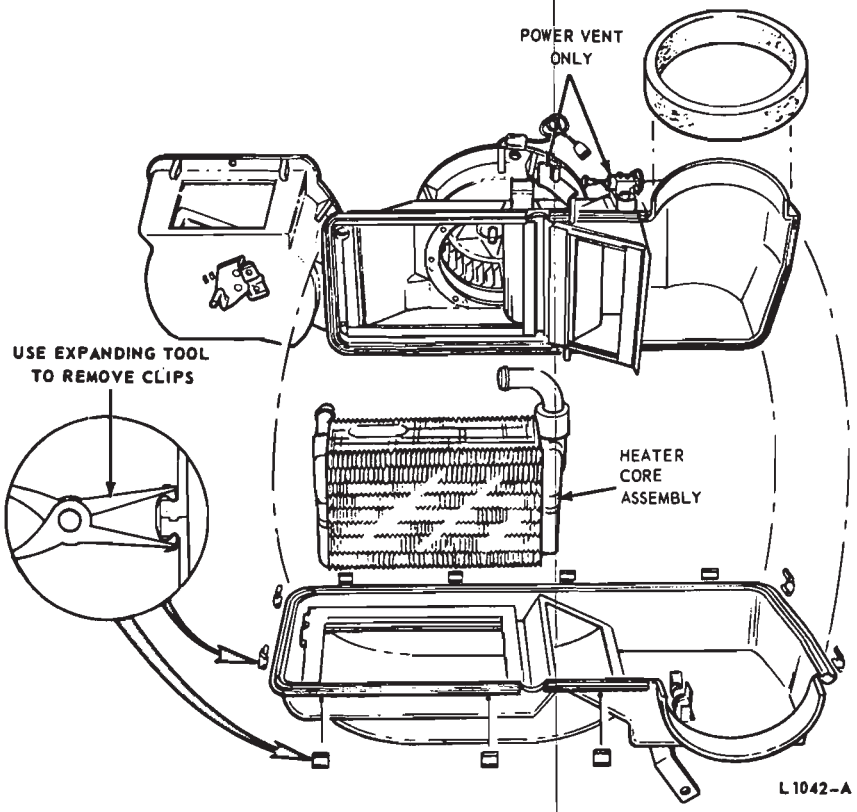


FIG. 36—Heater Core Removal—Mustang and Cougar

INSTALLATION

1. Position the blower and motor to the heater assembly and install the four mounting plate nuts.
2. Connect the blower wire to the resistor.
3. Install the heater assembly as outlined in this section.

HEATER CORE— MUSTANG AND COUGAR

REMOVAL

1. Remove the heater assembly as outlined in this section.
2. Remove the air inlet seal from the heater assembly.
3. Remove eleven clips from the heater assembly flange and separate the heater assembly housing (Fig. 36).
4. Remove the heater core from the heater assembly housing.

INSTALLATION

1. Position the heater core in the heater assembly housing.
2. Assemble the heater assembly housing and install the eleven clips (Fig. 36).
3. Install the air inlet seal on the heater assembly.

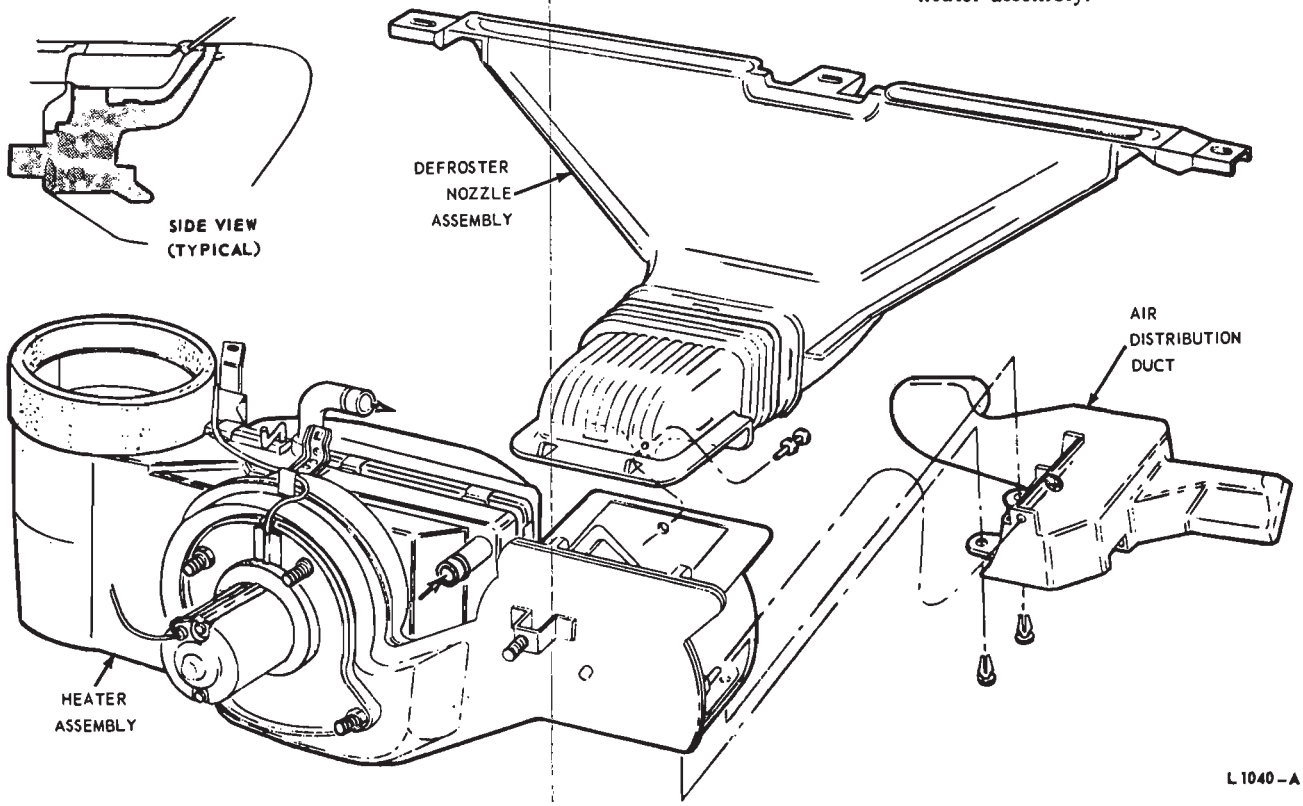


FIG. 37—Fresh Air Heater Disassembled

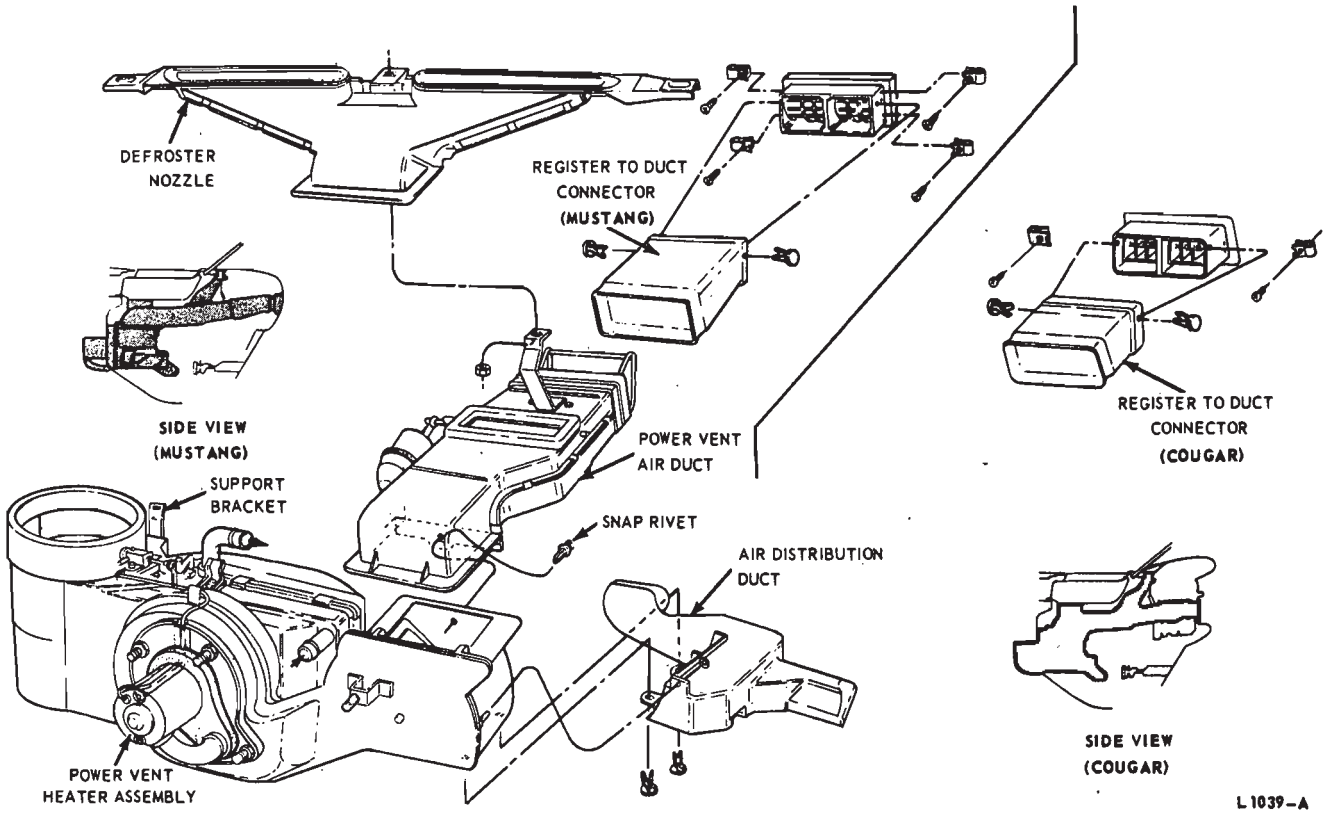


FIG. 38—Power Ventilation Heating System Disassembled

4. Install the heater assembly in the vehicle as outlined in this section.

DEFROSTER NOZZLE—WITH FRESH AIR HEATER—MUSTANG AND COUGAR

REMOVAL

1. Remove the snap rivet retaining the defroster nozzle to the heater plenum (Fig. 37).
2. Remove three nuts retaining the defroster nozzle to the instrument panel opening, and remove the defroster nozzle.

INSTALLATION

1. Position the defroster nozzle to the heater plenum and the defroster openings. Install the three defroster nozzle retaining nuts.
2. Install the snap rivet retaining the defroster nozzle to the heater plenum.

DEFROSTER NOZZLE—WITH POWER VENTILATION HEATING SYSTEM—MUSTANG AND COUGAR

REMOVAL

1. Remove the power vent air duct as outlined in this section.
2. Remove the two nuts retaining the defroster nozzle to the defroster opening and remove the defroster nozzle.

INSTALLATION

1. Position the defroster nozzle to the defroster opening.
2. Install the two outer end defroster nozzle retaining nuts.
3. Install the power vent air duct.

HEATER ASSEMBLY—MUSTANG AND COUGAR

REMOVAL

1. Disconnect the battery ground cable.
2. Drain the cooling system.
3. Remove the instrument panel pad (Group 47).
4. Remove the glove compartment liner and door.
5. Remove the air distribution duct from the heater (Figs. 37 and 38).
6. Disconnect the control cables from the heater assembly.
7. Disconnect the wires from the blower motor resistor.
8. Remove the right courtesy light located on the underside of the instrument panel, if so equipped.
9. Remove the heater support to dash panel attaching screw (Figs. 37 and 38).
10. Disconnect the vacuum hoses and remove the power vent air duct (Fig. 38) as outlined in this section (Power Ventilation Heating System Only).
11. Remove the blower motor ground wire grounding screw in the engine compartment.
12. Disconnect the heater hoses from the heater at the dash panel.
13. Working in the engine compartment, remove five heater assembly retaining nuts.
14. Remove the instrument panel-to-cowl panel attaching screws.
15. Remove the instrument panel right side brace.
16. Pull the heater assembly and the right side of the instrument panel rearward, and remove the heater assembly.

INSTALLATION

1. Position the heater under the instrument panel and install the support bracket attaching screw.
2. Install the five nuts retaining the heater assembly to the dash panel.
3. Install the power vent air duct (Fig. 38) and connect the vacuum hoses (Power Ventilation Heating

System only).
4. Connect the control cables to the heater assembly.
5. Install the instrument panel to cowl panel attaching screws and the instrument panel right side brace.
6. Connect the heater hoses to the heater.
7. Install the blower motor ground wire grounding screw.
8. Connect the wires to the blower motor and resistor.
9. Install the glove compartment liner and door, and the right courtesy light.
10. Install the air distribution duct (Figs. 37 and 38).
11. Install the instrument panel pad (Group 18).
12. Fill the cooling system.
13. Adjust the heater control cables.
14. Connect the battery ground cable.

INSTRUMENT PANEL REGISTER—MUSTANG AND COUGAR

REMOVAL

1. Remove the instrument panel pad (Group 47).
2. Remove the two snap rivets attaching the duct connector to the register.
3. Remove the register attaching screws and remove the register.

INSTALLATION

1. Position the register to the duct and instrument panel.
2. Install the register attaching screws and the duct connector attaching snap rivets.
3. Install the instrument panel pad.

POWER VENT AIR DUCT—MUSTANG AND COUGAR

REMOVAL

1. Remove the instrument panel pad (Group 47).
2. Remove the snap rivets attaching the duct connector to the instrument panel register.
3. Remove the instrument panel register attaching screws and remove the register.
4. Remove the duct connector from the air duct.
5. Remove the air duct support bracket and defroster center attachment retaining nut (Fig. 38).
6. Remove the snap rivet attaching the air duct to the heater plenum.
7. Slide the duct toward the instrument panel opening; disconnect the hose from the vacuum actuator; and remove the air duct.

INSTALLATION

1. Position the air duct to the heater plenum and install the snap rivet (Fig. 38). Connect the hose to the vacuum actuator.
2. Position the air duct to the defroster nozzle and install the retaining nut.
3. Install the duct connector on the air duct (Fig. 38).
4. Install the instrument panel register.
5. Install the instrument panel pad.

HEATER CONTROL—MUSTANG AND COUGAR

REMOVAL

1. Remove the radio knobs and remove the instrument panel center finish panel from around the heater control. Remove the radio from the instrument panel (Group 35).
2. Remove the heater control attaching screws and pull the control away from the instrument panel.
3. Disconnect the two control cables from the control.
4. Disconnect the blower switch and illumination bulb wires.
5. Disconnect the vacuum hoses from the vacuum switch on models with power ventilation heater system.

INSTALLATION

1. Position the heater control near the instrument panel opening. Connect the vacuum hoses (if so equipped), wires and control cables to the heater control.
2. Position the heater control to the instrument panel and install the attaching screws.
3. Install the instrument panel center finish panel and the radio control knobs.

6 MONTEGO, FALCON, MAVERICK AND FAIRLANE REMOVAL AND INSTALLATION

HEATER CORE—MONTEGO, FALCON, MAVERICK AND FAIRLANE

REMOVAL

1. Drain the cooling system.
2. Disconnect both heater hoses at the dash.
3. Remove the nuts retaining the heater assembly to the dash.
4. Disconnect the temperature and defroster cables at the heater.
5. Disconnect the wires from the resistor, and disconnect the blower motor wires and the clip retaining the heater assembly to the defroster nozzle.
6. Remove the glove box.
7. Remove the bolt and nut retaining the right air duct control to the instrument panel. Remove the nuts retaining the right air duct and remove the duct assembly.
8. Remove the heater assembly to the bench.
9. Remove the heater core cover and pad and remove the core.

INSTALLATION

1. Transfer the seals from the old core to the new core (Fig. 39).
2. Position the core in the heater and install the pad and cover.
3. Position the heater assembly in the vehicle and install the retaining nuts.
4. Connect the heater hoses.
5. Connect the motor and resistor leads.
6. Connect and adjust (see Common Adjustments and Repairs), the temperature and defroster cables, and install the clip retaining the heater to the defroster nozzle.
7. Install the right air duct, and install the control cable to the instru-

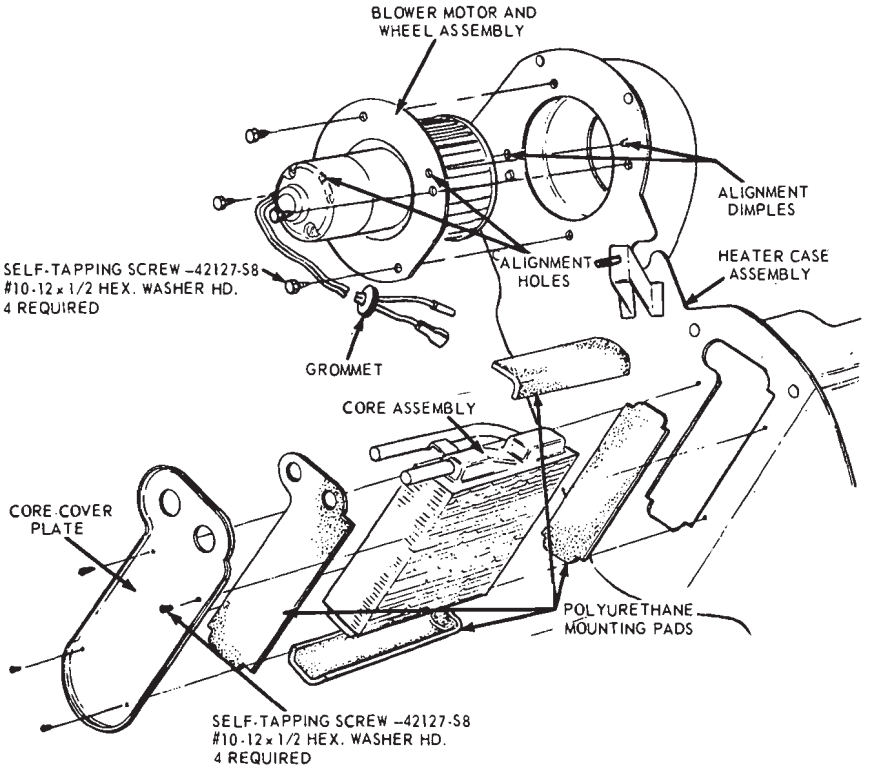


FIG. 39—Heater Blower Motor and Core Assemblies—Montego, Falcon, Maverick and Fairlane

ment panel.

8. Install the glove box, and fill the cooling system.

HEATER BLOWER AND MOTOR—MONTEGO, MAVERICK, FALCON AND FAIRLANE

REMOVAL

1. Drain the cooling system.
2. Disconnect both heater hoses at the dash.
3. Remove the nuts retaining the heater assembly to the dash.
4. Disconnect the temperature and defroster cables at the heater.
5. Disconnect the wires from the resistor, and disconnect the blower motor wires and the clip retaining the heater assembly to the defroster nozzle.
6. Remove the glove box.
7. Remove the bolt and nut retaining the right air duct control to the instrument panel. Remove the nuts retaining the right air duct and remove the duct assembly.
8. Remove the heater assembly to a bench.
9. Remove the blower mounting screws and remove the motor and wheel assembly.

INSTALLATION

1. Install the blower motor and wheel assembly to the heater assembly.
2. Position the heater assembly in the vehicle and install the retaining nuts.
3. Connect the heater hoses.
4. Connect the motor and resistor leads.
5. Connect and adjust (see Common Adjustments and Repairs), the temperature and defroster cables, and install the clip-retaining the heater to the defroster nozzle.
6. Install the right air duct, and install the control cable to the instrument panel.
7. Install the glove box, and fill the cooling system.

CONTROL ASSEMBLY—FALCON

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the instrument cluster retaining screws, position the cluster out, disconnect the speedometer cable, both heater cables and the light bulb.
4. Disconnect the heater switch plug. Disconnect the multiple plug from the printed circuit, and remove the cluster.
5. Remove the heater control knobs.
6. Remove the nuts retaining the control and switch to the cluster. Remove the control, then the switch.
7. Position the new switch, then the control to the cluster and install the retaining nuts.
8. Install the control knobs.
9. Connect the heater control cables to the control. Connect the speedometer cable, light bulb, switch plug and multiple plug.
10. Position the cluster to the instrument panel and install the retaining screws.
11. Install the instrument panel pad (Group 18).
12. Connect the battery ground cable.

CONTROL ASSEMBLY—MONTEGO

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the screws retaining the instrument cluster to the panel, position the cluster out, disconnect the cables and wires, and remove the cluster.
4. Remove both control knobs, remove the control retaining screws, and remove the control.
5. Position the new control to the cluster back and install the retaining screws and the control knobs.
6. Plug the multiple connector to the printed circuit. Push on the speedometer cable. Connect the heater cables and the heater switch.
7. Position the cluster to the panel and install the mounting screws.
8. Install the instrument panel pad (Group 18).
9. Connect the battery ground cable.

CONTROL ASSEMBLY—FAIRLANE

1. Remove the instrument panel pad (Group 47).
2. Remove the defrost and temperature control knobs. Disconnect the defrost and temperature control cables at the control.
3. Remove the heater control mounting screws and remove the control.
4. Position the control and install

the mounting screws. Clamp the harness under two of the plastic clips.

5. Connect and adjust the defrost and temperature cables.

6. Install the control knobs.

7. Install the instrument panel pad (Group 47).

HEATER TEMPERATURE CONTROL CABLE AND/OR DEFROSTER CONTROL CABLE—FAIRLANE

REMOVAL

1. Disconnect the battery ground cable.

2. From under the instrument panel, remove the cable(s) from the control head. Loosen, but do not remove the control cable clamp retaining screw(s) at the heater plenum chamber.

3. Remove the cable(s) from the heater plenum chamber crankarms.

INSTALLATION

1. Position the cable(s) on the control head and on the plenum chamber crankarms.

2. Adjust the cables for proper operation and tighten the retaining clamps at the plenum chamber.

3. Connect the battery ground cable.

HEATER TEMPERATURE CONTROL CABLE AND/OR DEFROSTER CONTROL CABLE—MONTEGO

REMOVAL

1. Disconnect the battery ground cable.

2. Remove the glove compartment liner retaining screws and remove the liner.

3. Remove the instrument panel pad. Refer to Group 47.

4. Disconnect the control cable at the control head and at the heater plenum chamber. Remove the cable (Fig. 40).

INSTALLATION

1. Position the control cable to the control head and to the lever on the plenum chamber (Fig. 40).

2. Adjust the control cable length for proper operation (Refer to adjustment procedure, Section 3).

3. Install the instrument panel pad and the glove compartment liner.

4. Connect the battery ground cable.

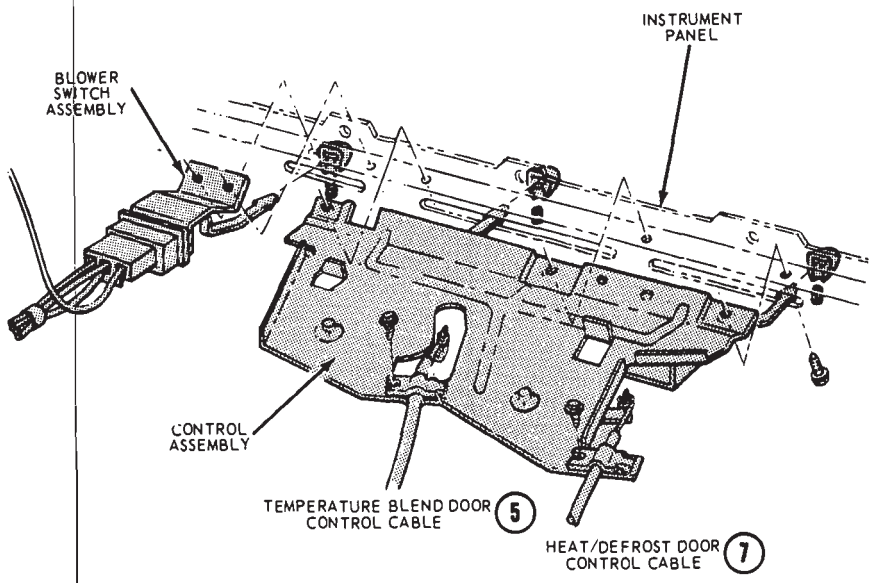


FIG. 40—Heater Controls—Montego

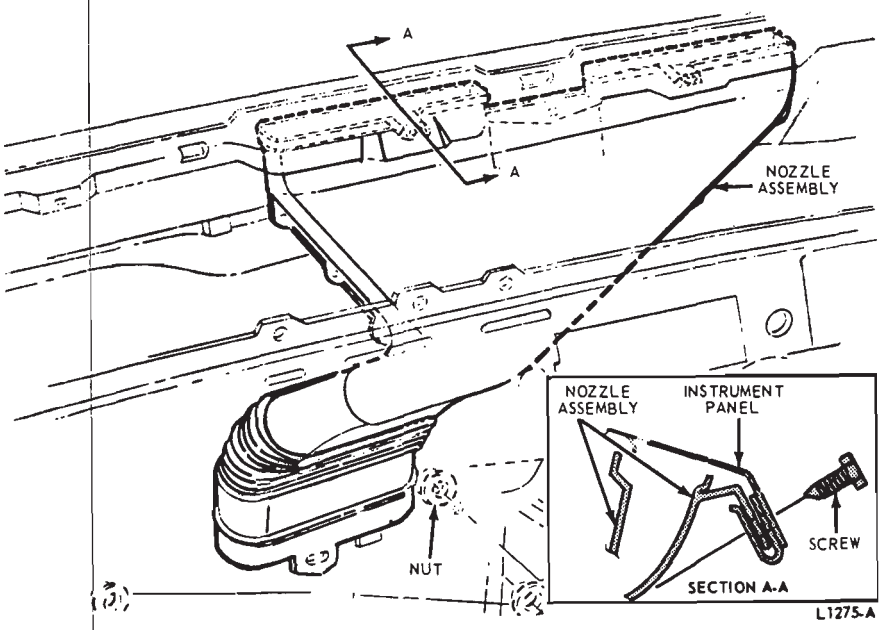


FIG. 41—Defroster Nozzles—Montego and Fairlane

BLOWER SWITCH—MONTEGO, FALCON, FAIRLANE

1. Disconnect the battery ground cable.

2. Remove the switch control knob.

3. Remove the screws and/or nuts retaining the switch to the instrument panel, disconnect and remove the switch.

4. Connect the new switch, position it to the instrument panel and install the retaining screws (bolt and nut on Fairlane).

5. Install the control knob.

6. Connect the battery ground cable.

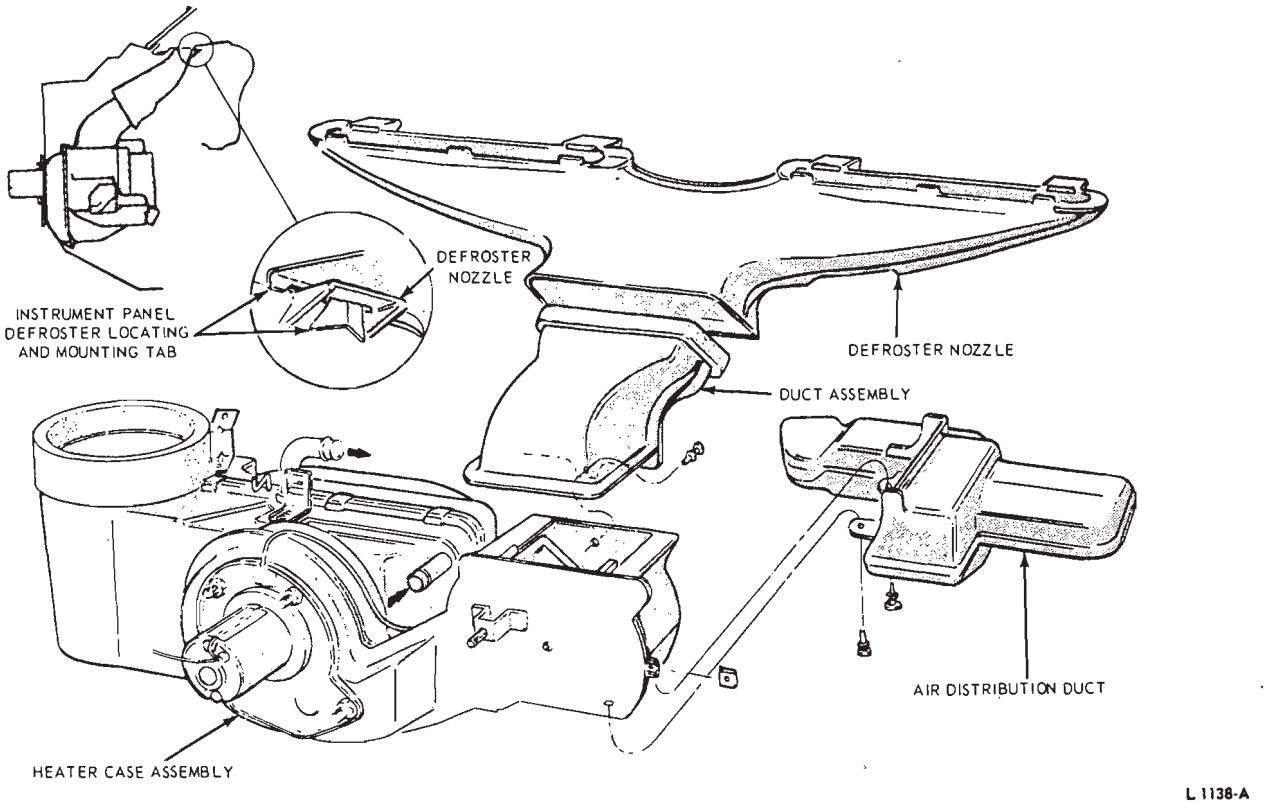


FIG. 42—Heater—Maverick

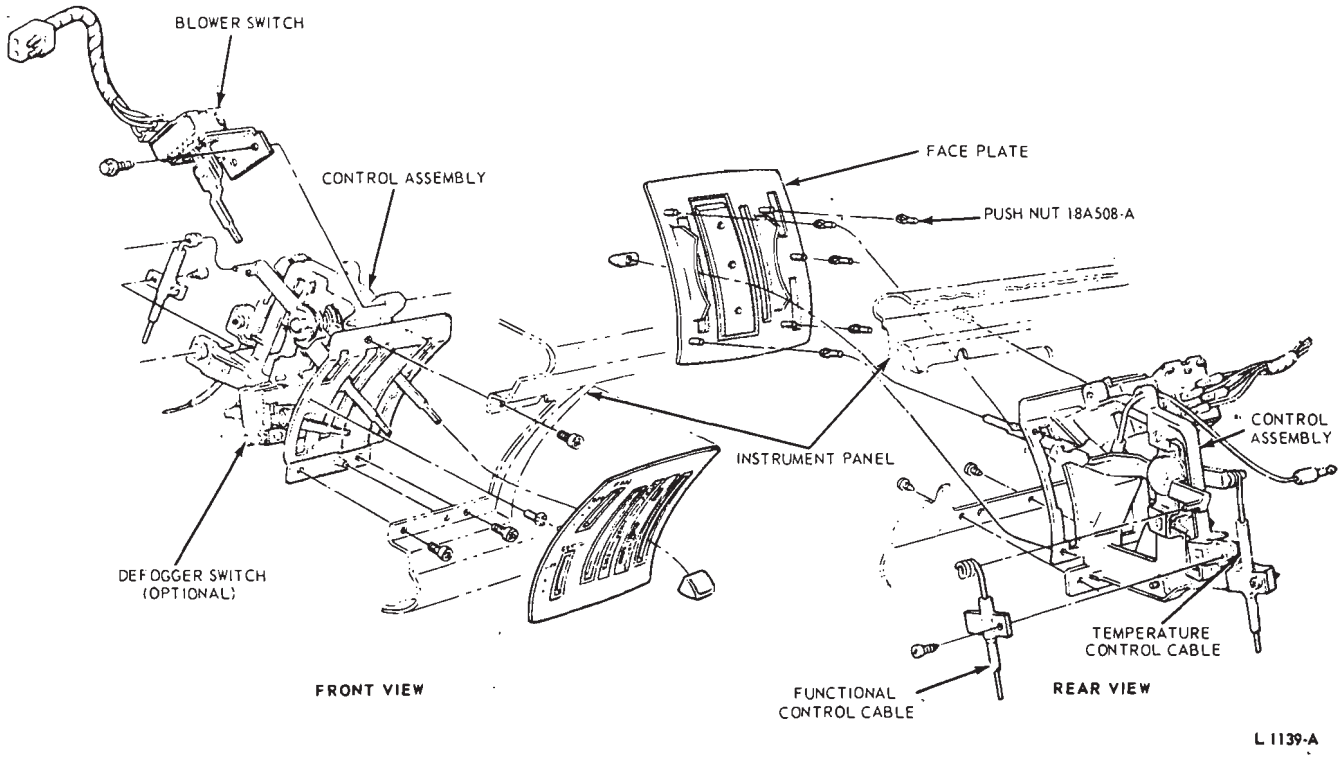


FIG. 43—Heater Control Assembly—Maverick

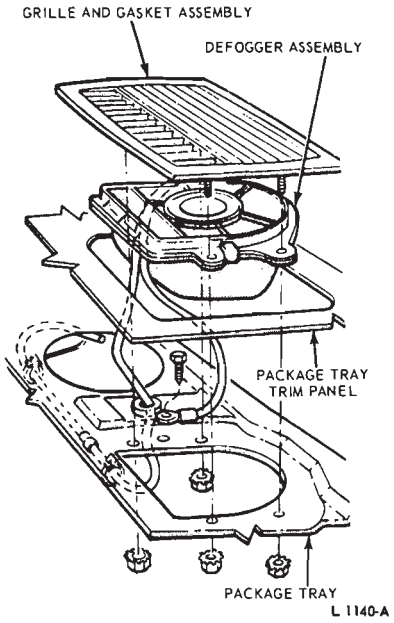


FIG. 44—Defogger Motor—Maverick

BLOWER RESISTOR—FALCON, MAVERICK, FAIRLANE AND MONTEGO

1. Disconnect the wires from the instrument panel.
2. Remove the two resistor attaching screws and remove the resistor.
3. Position the resistor to the heater housing and install the two attaching screws.
4. Connect the wires to the resistor and check the operation of the blower.

DEFROSTER NOZZLES—MONTEGO, FALCON, MAVERICK, AND FAIRLANE

The Fairlane, Falcon and Montego have a common type nozzle.

1. Remove the instrument panel pad (Group 47).
2. Remove the defroster nozzle retaining clip screw (Fig. 41 and 2).
3. Remove the defroster nozzle retaining screws.
4. Remove the nozzle.

HEATER ASSEMBLY—MAVERICK

REMOVAL

1. Disconnect the battery ground cable.
2. Drain the cooling system.
3. Disconnect the ignition switch and plate from the package tray and position the switch out of the way.
4. Remove the package tray from under the instrument panel.
5. Remove the two clips and push nut retaining the duct assembly to the heater (Fig. 42). Then disconnect the defroster and temperature control cables from the heater.
6. Remove the right cowl trim panel and remove the right package tray bracket.
7. Working in the engine compartment, disconnect the two heater hoses and disconnect the blower ground wire from the fender apron.
8. Remove the 5 nuts retaining the heater to the dash. Then remove the screw retaining the heater to the cowl.
9. Disconnect the motor lead from the resistor assembly on the bottom of the heater.
10. Remove the heater from the vehicle.

INSTALLATION

1. Position the heater on the floor and connect both heater hoses.
2. Position the heater to the dash and install the retaining screw into the cowl.
3. Install the 5 nuts retaining the heater to the dash. Then, connect the blower ground wire to the fender apron.
4. Connect the motor lead to the resistor, then connect the defroster and temperature control cable and adjust them.
5. Install the duct assembly retaining clips and push nut.
6. Install the right package tray bracket, then install the right cowl trim panel.
7. Install the package tray under the instrument panel.
8. Install the ignition switch and plate on the package tray.
9. Fill the cooling system.
10. Connect the battery ground cable.

HEATER CONTROL ASSEMBLY, BLOWER SWITCH, DEFOGGER SWITCH, DEFROSTER AND TEMPERATURE CONTROL CABLES—MAVERICK

To remove the heater control assembly, blower switch and/or control cables, it is necessary to remove the instrument cluster (Group 33). Pull the knobs off the temperature control and defroster levers (Fig. 43). Carefully remove the face plate by prying it off at the top and bottom alternately. If this is not done, the mounting pins may be broken. Then, remove the 3 screws retaining the heater control assembly to the instrument panel and move the assembly out through the cluster opening. If the blower switch or defogger switch is to be replaced, disconnect the switch lead and remove the switch.

If the control cables are to be replaced, disconnect the cables at the control assembly and at the heater.

If the control assembly is to be replaced, disconnect all switch leads and cables and remove the assembly.

When installing the face plate, position all of the levers between the top of their slots and mid position. Position the plate so that the five pins line up with the elongated holes in the casting. Press evenly on the plate top, center and bottom until all five pins are fully engaged.

DEFOGGER MOTOR—MAVERICK

To remove the defogger motor, remove the 4 nuts retaining the defogger assembly to the package tray (Fig. 44). Then, disconnect the defogger motor lead. Both the retaining nuts and the lead are reached from inside the luggage compartment. Working inside the vehicle, carefully pry up the grille and remove it. Lift up the defogger assembly and disconnect the motor ground wire from the package tray.

7 THUNDERBIRD AND CONTINENTAL MARK III REMOVAL AND INSTALLATION

CONTROL ASSEMBLY

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the inspection cover plate from below the steering column.
3. Remove the air-control assembly retaining screws and position the unit so as to allow access to the headlight switch.
4. Remove the light switch knob. Remove the screws retaining the control bezel and remove the bezel.
5. Remove the light switch retaining nut, and position the light switch out of the way.
6. Disconnect the multi-connectors from the control, remove the control retaining screws, pull the control down and out of the vehicle.

INSTALLATION

1. Position the control in the instrument panel and install the retaining screws.
2. Connect the multi-connectors and install the light switch retaining nut.
3. Install the control bezel and light switch knob.
4. Install the air control assembly and the inspection cover plate.
5. Connect the battery ground cable.

HEATER CORE

REMOVAL

1. Remove the hood and air cleaner, and drain the engine coolant.
2. Disconnect both hydraulic lines at the wiper motor and position them to one side.
3. Disconnect the heater hoses at the heater core and position the hoses and water valve away from the housing.
4. Disconnect the vacuum supply hose on top of the housing, and remove the oil pressure sender unit from the back of the engine.
5. Remove the transmission dip stick and tube assembly.
6. Disconnect the multiple connector leading to the icing switch.
7. Remove the evaporator housing front cover.
8. Remove the heater core housing cover.
9. Remove the heater core retaining bracket and remove the heater core.

INSTALLATION

1. Transfer the heater core pads to the new core, and position the core in the housing. Install the core retaining bracket.
2. Install the heater core housing cover and the evaporator core housing cover.
3. Connect the multiple connector leading to the icing switch.
4. Install the transmission dipstick and tube assembly
5. Conneat the vacuue supply hose at the top of the housinc and insTall the oil pressure sender unit.
6. Connect the heater hoses, and fill the cooling system.
7. Connect the wiper hydraulic lines to the wiper motor.
8. Install the air cleaner and hood.
9. Start the engine, check the heating system, check the power steering fluid, add fluid if necessary.

HEATER, REAR WINDOW DEFOGGER, OR A/C BLOWER MOTOR SWITCH

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the inspection cover plate from below the steering column.
3. Remove the air-control assembly retaining screws and position the unit so as to allow access to the headlight switch.
4. Remove the light switch knob. Remove the screws retaining the control bezel and remove the bezel.
5. Remove the light switch retaining nut, and position the light switch out of the way.
6. Disconnect the blower switch wiring.
7. Remove the two bottom screws retaining the temperature control unit to the instrument panel. Loosen the two top screws and remove the blower switch.

INSTALLATION

1. Position the new switch in the instrument panel and install the retaining screws.
2. Connect the blower switch wiring, position the light switch and install the light switch retaining nut.
3. Install the control bezel and light switch knob.
4. Install the air control assembly and the inspection cover plate.
5. Connect the battery ground cable.

BLOWER MOTOR AND WHEEL ASSEMBLY

REMOVAL

1. Remove the right cowl side trim panel.
2. Remove the screws retaining the duct to the cowl side panel and sound baffle, and remove the duct.
3. Disconnect the lead wire to the blower motor.
4. Remove one screw from the motor mounting plate, rotate the motor mounting plate counterclockwise to unlock the plate from the case and remove the motor and wheel assembly through the opening in the cowl side panel.

INSTALLATION

1. Position the motor and wheel assembly in through the opening in the cowl side panel, rotate the motor mounting plate clockwise to lock the plate to the case. Install the retaining screw.
2. Connect the lead wire to the blower motor.
3. Position the duct to the cowl side panel and sound baffle, and install the six retaining screws.
4. Install the right cowl side trim panel.

DEFROSTER NOZZLES

The defroster nozzles are accessible by removing the instrument panel upper finish panel. The panel is retained in its position with snap clips on the rear edge of the panel and can be pried up with a screwdriver or flat piece of sheet metal. With the left defroster nozzle loose, the molded air

duct can be removed from the defroster ducts on the plenum. The plenum defroster adapter is retained to the plenum with a retaining clip on the bottom of the duct.

BLOWER MOTOR RESISTOR

The blower motor resistor is located in the blower housing and is retained by two sheet-metal screws.

WATER VALVE

The heater water valve and vacuum motor assembly is located immediately outside the core case in the heater core inlet hose (Fig. 20).

VACUUM MOTORS

VENT/HEAT DOOR AND HEAT/DEFROST DOOR MOTORS

The vent/heat door motor is located on the left side of the plenum under the instrument panel. The heat-/defrost door motor is located on the right side of the plenum under the instrument panel.

To remove the vent/heat door or heat/defrost door motors, disconnect the battery ground cable, remove the lower instrument panel cover, remove the clip connecting the motor arm to the door, remove the mounting nuts, and disconnect the vacuum hose.

OUTSIDE AIR DOOR MOTOR

The outside air door motor is located inside the heater cover in the engine compartment. To remove the motor, disconnect the blower motor resistor plug and remove the heater cover. The motor is then accessible for removal.

DEFOGGER MOTOR

1. From inside the luggage compartment disconnect the motor power lead.
2. Remove the package tray trim panel, and remove the four defogger retaining clips by twisting them 1/4 turn.
3. Lift the defogger from the package tray support, remove the ground wire retaining screw, and remove the assembly.
4. Remove the clips and separate the motor and wheel from the housing.
5. Transfer the blower wheel to the new motor, and install the motor and wheel in the housing.
6. Position the defogger to the package tray, install the ground lead and defogger mounting clips. Route the power lead through the hole in the tray.
7. Connect the power lead from inside the luggage compartment, and check the operation of the defogger.

8 LINCOLN CONTINENTAL REMOVAL AND INSTALLATION

BLOWER MOTOR AND WHEEL ASSEMBLY

REMOVAL

1. Remove the hood (Group 43).
2. Remove the right hood hinge and right fender inner support brace as an assembly (Fig. 45).
3. Disconnect the blower motor air cooling tube from the motor (Fig. 46).
4. Disconnect the motor lead wire from the harness and the ground wire from the dash panel.
5. Disconnect the rear section of the right front fender apron from the fender around the wheel opening (7 screws) and remove the two lower fender-to-cowl mounting screws (Fig. 47).
6. Separate the fender apron from the fender wheel opening so that the apron can be pushed downward away from the blower motor.
7. Remove the four blower motor mounting plate screws. Move the motor and wheel forward out of the blower scroll and remove the assembly through the opening while applying pressure to the fender apron to enlarge the opening at the hinge area (Fig. 46).

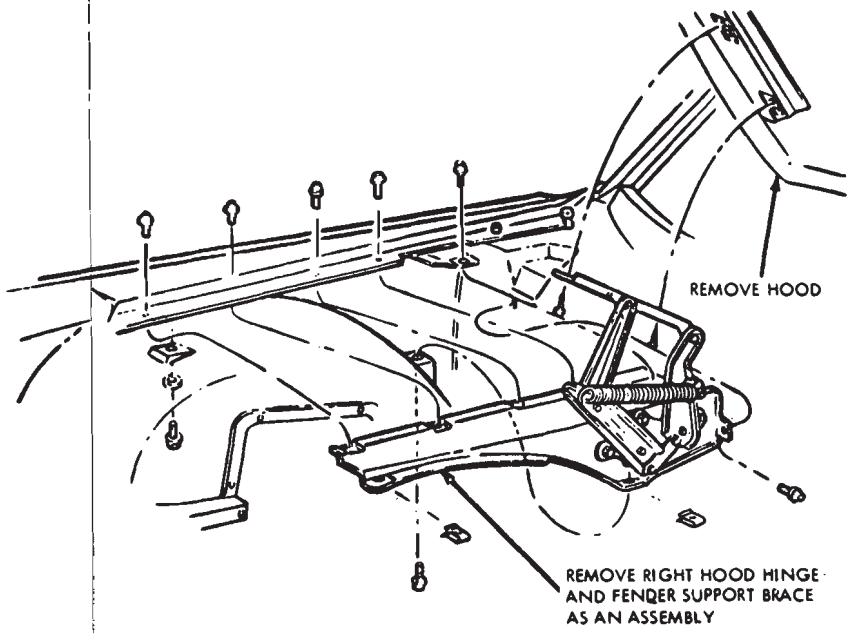


FIG. 45—Hood Hinge Removal—Lincoln Continental

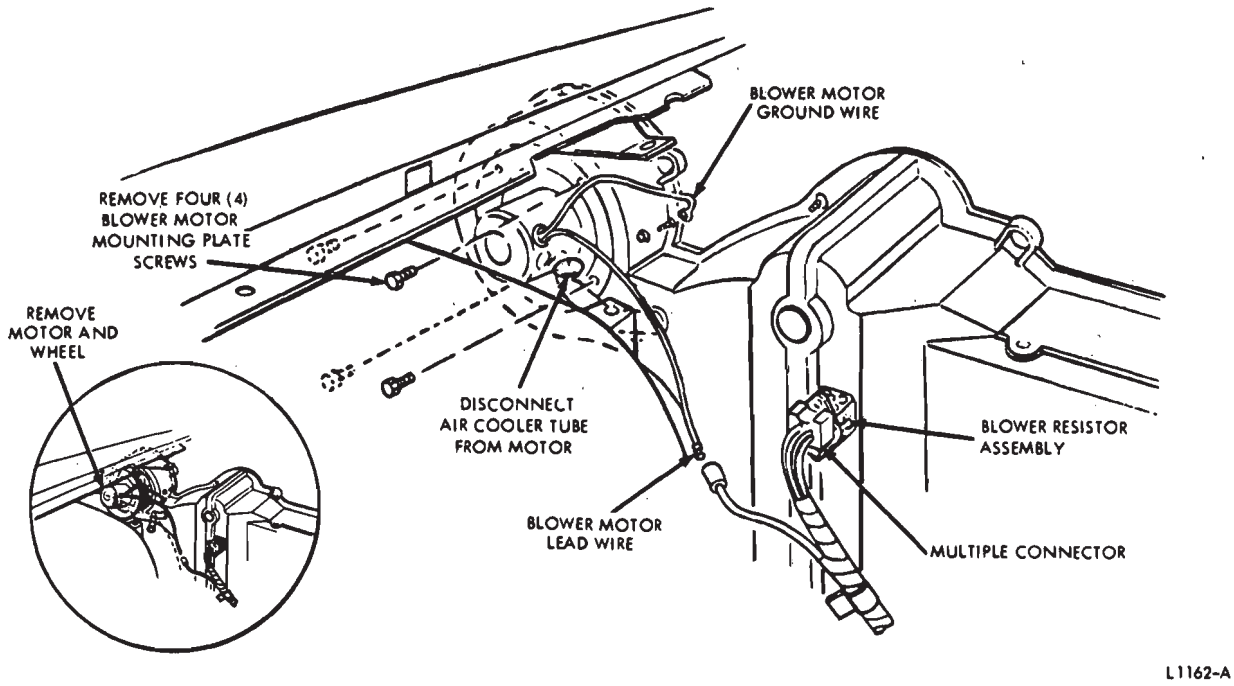


FIG. 46—Heater System Blower Motor Removal—Lincoln Continental

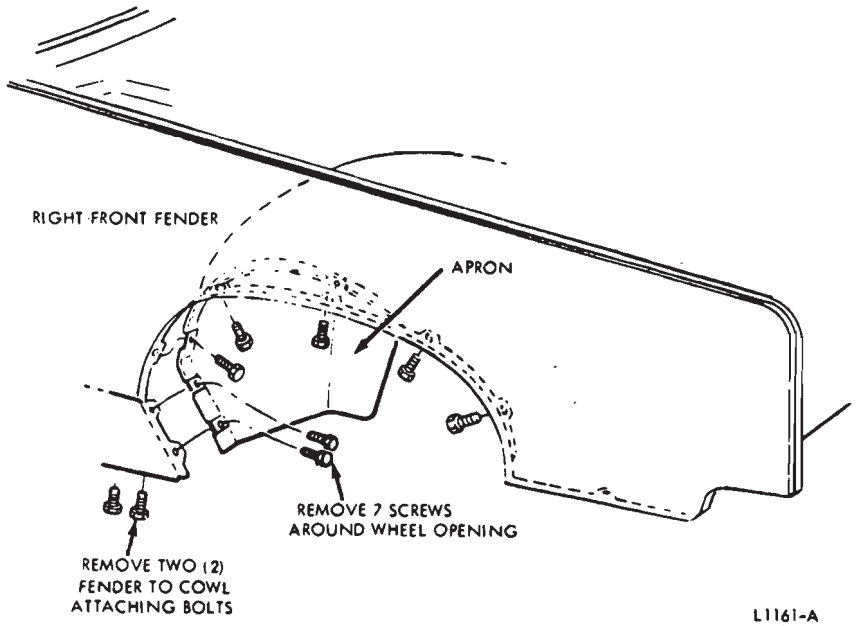


FIG. 47—Right Fender Removal—Lincoln Continental

INSTALLATION

1. Apply pressure to the fender apron to enlarge the opening and carefully insert the blower motor and wheel assembly through the opening to prevent damage to the blower wheel.
2. Position the blower motor wheel assembly into the blower scroll and install the four blower motor mounting plate screws (Fig. 46).
3. Position the rear section of the right front fender (Fig. 47) and install the seven attaching screws around the wheel opening and the two lower fender-to-cowl mounting screws.
4. Connect the blower motor ground wire to the dash panel and the lead wire to the wire harness (Fig. 46).
5. Connect the motor air cooling tube to the motor.
6. Install the right hood hinge and fender inner support brace assembly (Fig. 45).
7. Install the hood (Group 43).

HEATER CORE

REMOVAL

1. Drain the engine coolant.

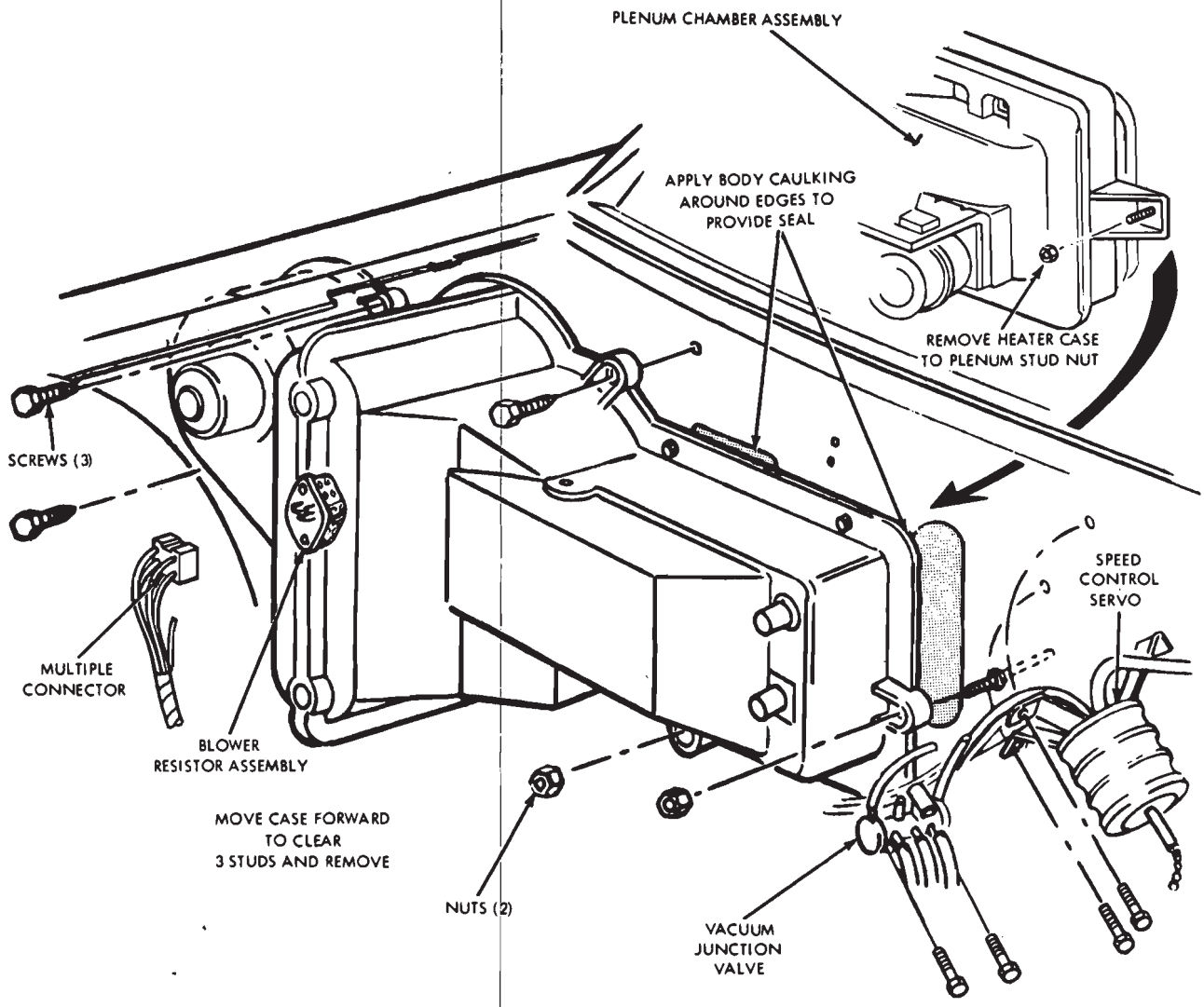


FIG. 48—Heater Case Removal—Lincoln Continental

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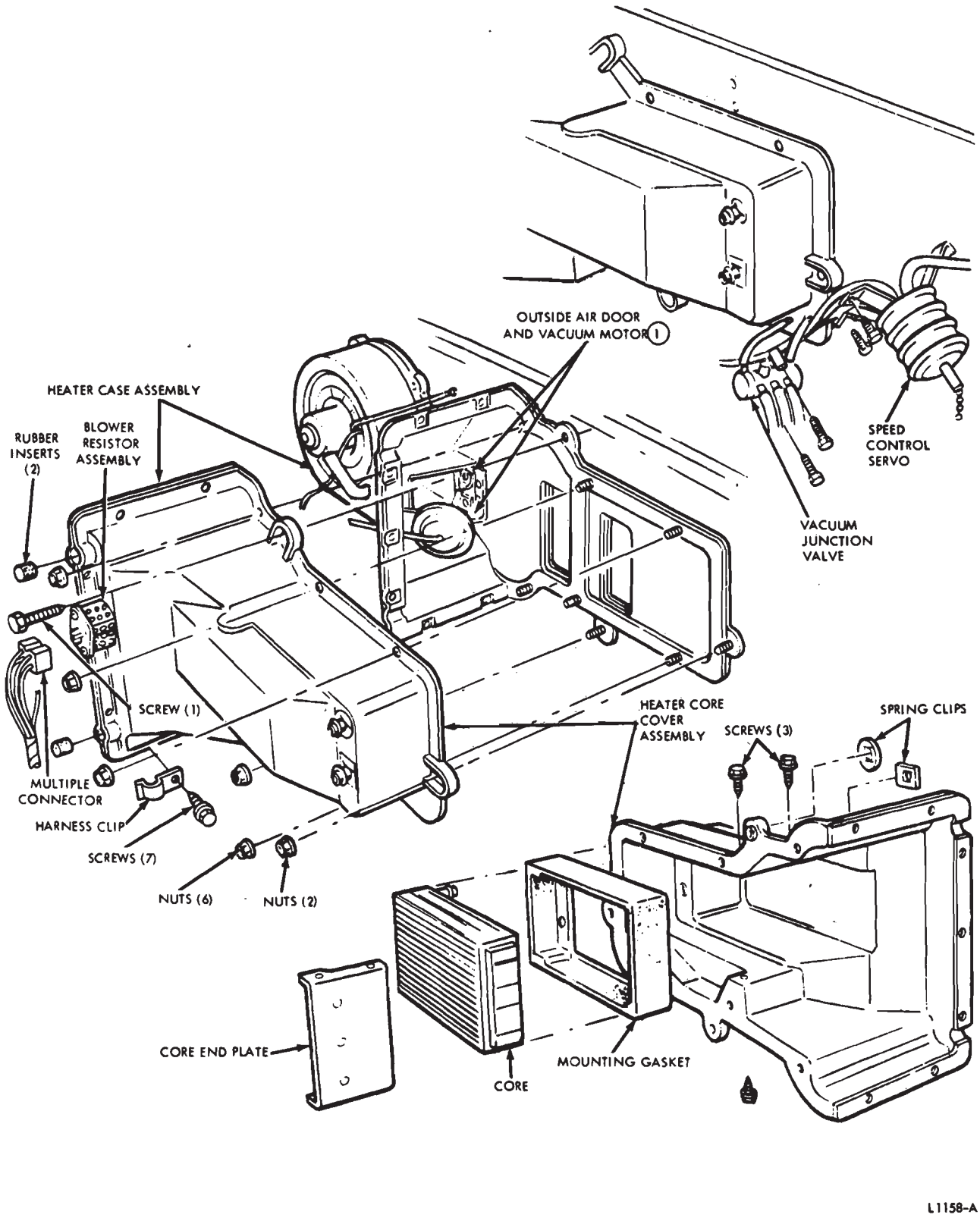


FIG. 49—Standard Heater Core Removal—Lincoln Continental

2. Disconnect the vacuum junction valve (Fig. 48) from the dash panel and move the valve and vacuum hoses away from the case.
3. Disconnect the speed control servo and bracket assembly from the dash panel (on vehicles so equipped) and move it away from the case.
4. Disconnect the multiple connector from the blower resistor and harness from the clip on the case.
5. Disconnect the heater hoses from the heater case and the hose support clamp from the case. Move the hoses and water valve away from the heater case.
6. Remove seven case cover-to-case flange attaching screws and the wire harness clip (Fig. 49).
7. Remove six case cover-to-back plate stud nuts.
8. Remove one upper case-to-dash panel mounting screw.
9. Remove two case-to-dash panel mounting stud nuts, one on the inboard mounting flange and one below the case on the lower flange.
10. Carefully move the heater core cover assembly forward to clear the mounting studs and lift it up and out of the vehicle.
11. Remove two spring clips from the core tubes on the front of the core cover (Fig. 49).
12. Remove three core end plate mounting screws and remove the plate.
13. Remove the heater core and mounting gasket assembly from the core cover and remove the gasket from the core.

INSTALLATION

1. Assemble the heater core and mounting gasket assembly and position them in the heater core cover assembly as shown in Fig. 49.
2. Position the core end plate and install the two upper and one lower mounting screws.
3. Install the two core tube spring clips on the front of the core cover.
4. Carefully position the heater core cover assembly on the heater case assembly mounting studs.
5. Install the two case-to-dash panel mounting stud nuts, one on the inboard mounting flange and one below the case on the lower flange.
6. Install the upper case-to-dash panel mounting screw.
7. Install the six case cover-to-back plate stud nuts.
8. Install the seven case cover-to-case flange attaching screws and wire harness clip.
9. Connect the heater hoses to the heater core tubes and secure the hoses and hose support clamp to the core cover with the retaining bolt. Position and secure the heater hose clamps at the heater core tubes.
10. Plug in the multiple connector to the blower resistor and insert the wiring harness in the clip on the case.
11. Position the speed control servo and bracket assembly (if so equipped) on the dash panel and secure with the two dash panel mounting screws.
12. Position the vacuum junction valve on the dash panel and secure with the two dash panel mounting screws.
13. Fill the system with coolant, start the engine and test the heater system for coolant leaks.

HEATER CASE ASSEMBLY

REMOVAL

1. Drain the engine coolant.
2. Remove the hood (Group 43).
3. Remove the right hood hinge and right front fender inner support brace as an assembly (Fig. 45).
4. Disconnect the vacuum junction valve from the dash panel and move the valve and vacuum hoses away from the case (Fig. 48).
5. Disconnect the speed control servo and bracket assembly from the dash panel (on vehicles so equipped) and move them away from the case.
6. Disconnect the heater hoses from core and the hose support clamp from the front of the case. Move the hoses and water valve away from the case.
7. Disconnect the vacuum hose (white) from the outside air door (1) vacuum motor at the inline connector (Fig. 49).
8. Disconnect the blower motor ground wire from the dash panel and the lead wire from the harness (Fig. 46).
9. Disconnect the multiple connector from the blower resistor and the harness from the clip on the case.
10. Remove one case mounting stud nut under the instrument panel on the right side of the plenum chamber mounting flange (Fig. 48).
11. Remove three heater case-to-dash panel mounting screws and two mounting stud nuts.
12. Move the case assembly forward to clear the three studs, lift the case upward to clear the engine, and inboard to clear the fender and apron.

INSTALLATION

1. To provide a positive seal between the case and dash panel and insure against air and/or water leaks, apply body caulking around the edge of the dash panel openings before installing the heater case assembly (Fig. 48).
2. Carefully place the heater case assembly over the dash panel openings and on the two mounting studs. **Make certain that the mounting stud on the heater case aligns properly with the hole in the dash panel.**
3. Install the three heater case-to-dash panel mounting screws and two mounting stud nuts.
4. Install the one case mounting stud nut under the instrument panel on the right side of the plenum chamber mounting flange.
5. Plug the wire harness multiple connector onto the blower resistor and insert the harness into the clip on the case.
6. Connect the blower motor ground wire to the dash panel and the lead wire to the harness (Fig. 46).
7. Connect the outside air door (1) vacuum hose (white) to the inline connector (Fig. 49).
8. Connect the heater hoses to the heater core tubes and secure the hoses and hose support clamp to the core cover with the retaining bolt. Position and secure the heater hose clamps at the heater core tubes.
9. Position the speed control servo and bracket assembly (if so equipped) on the dash panel and secure with the two dash panel mounting screws (Fig. 48).
10. Position the vacuum junction valve on the dash panel and secure with the two dash panel mounting screws.
11. Install the right hood hinge and front fender inner support brace assembly (Fig. 45).
12. Install the hood (Group 43).
13. Fill the system with coolant, start the engine and test the heater system for coolant leaks.

DEFROSTER NOZZLES

REMOVAL

1. Remove the instrument panel upper pad assembly (Group 47), and defroster nozzle extensions. **The right and left defroster nozzle extensions are attached to the upper instrument panel pad assembly.**
2. Remove two defroster nozzle-to-dash panel mounting screws to re-

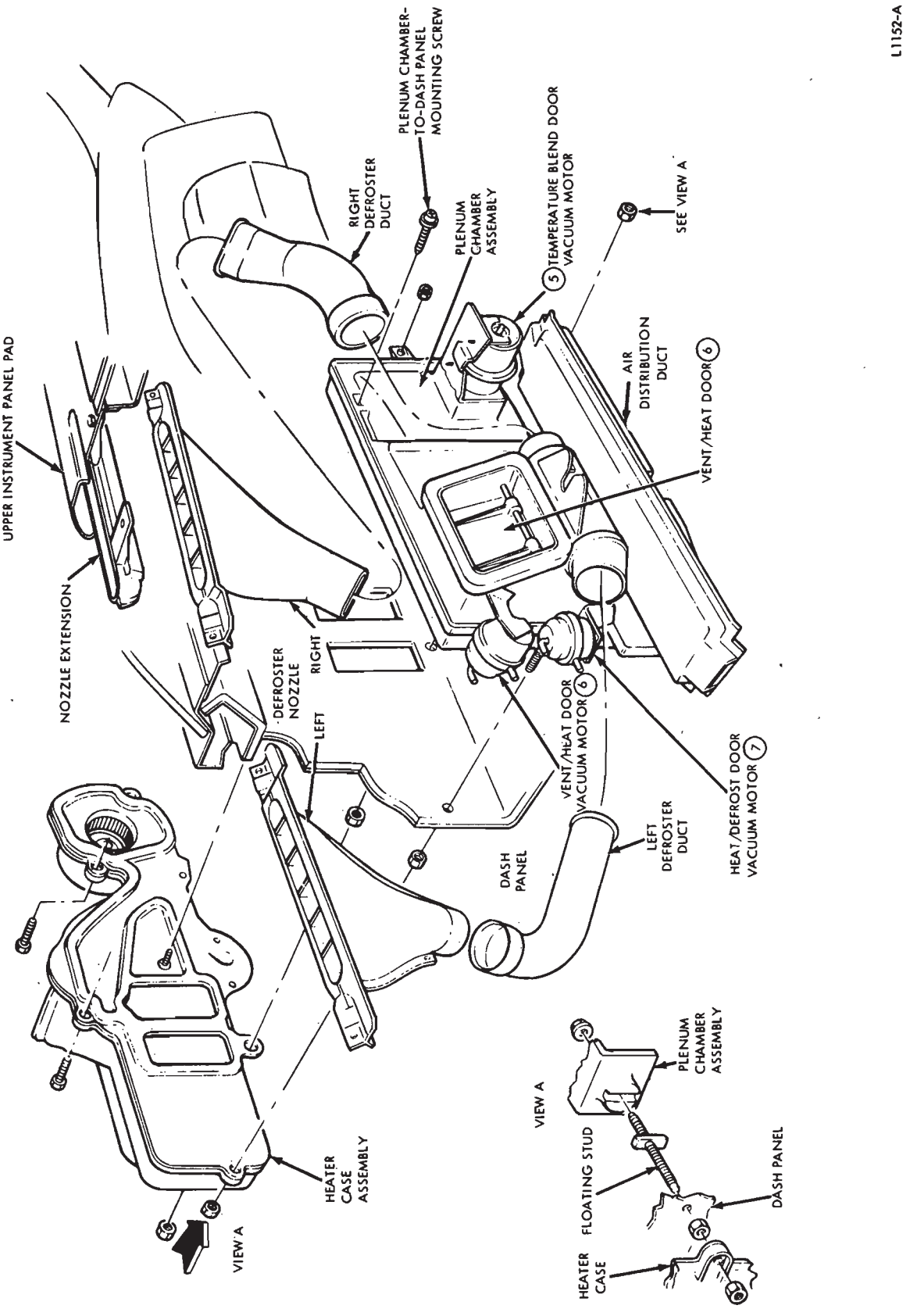


FIG. 50—Standard Heater System—Lincoln Continental

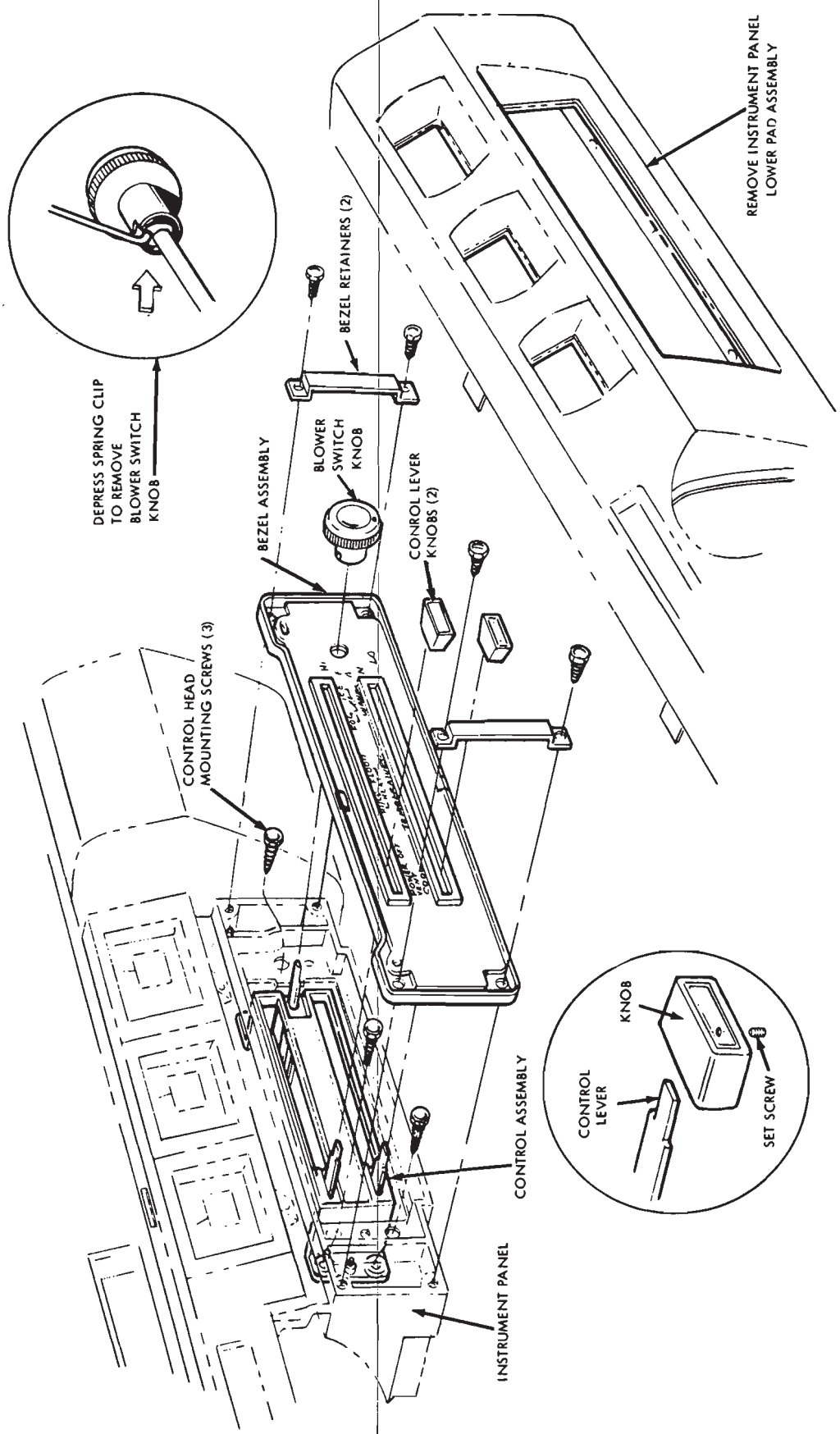


FIG. 51—Standard Heater Control Assembly Removal—Lincoln Continental

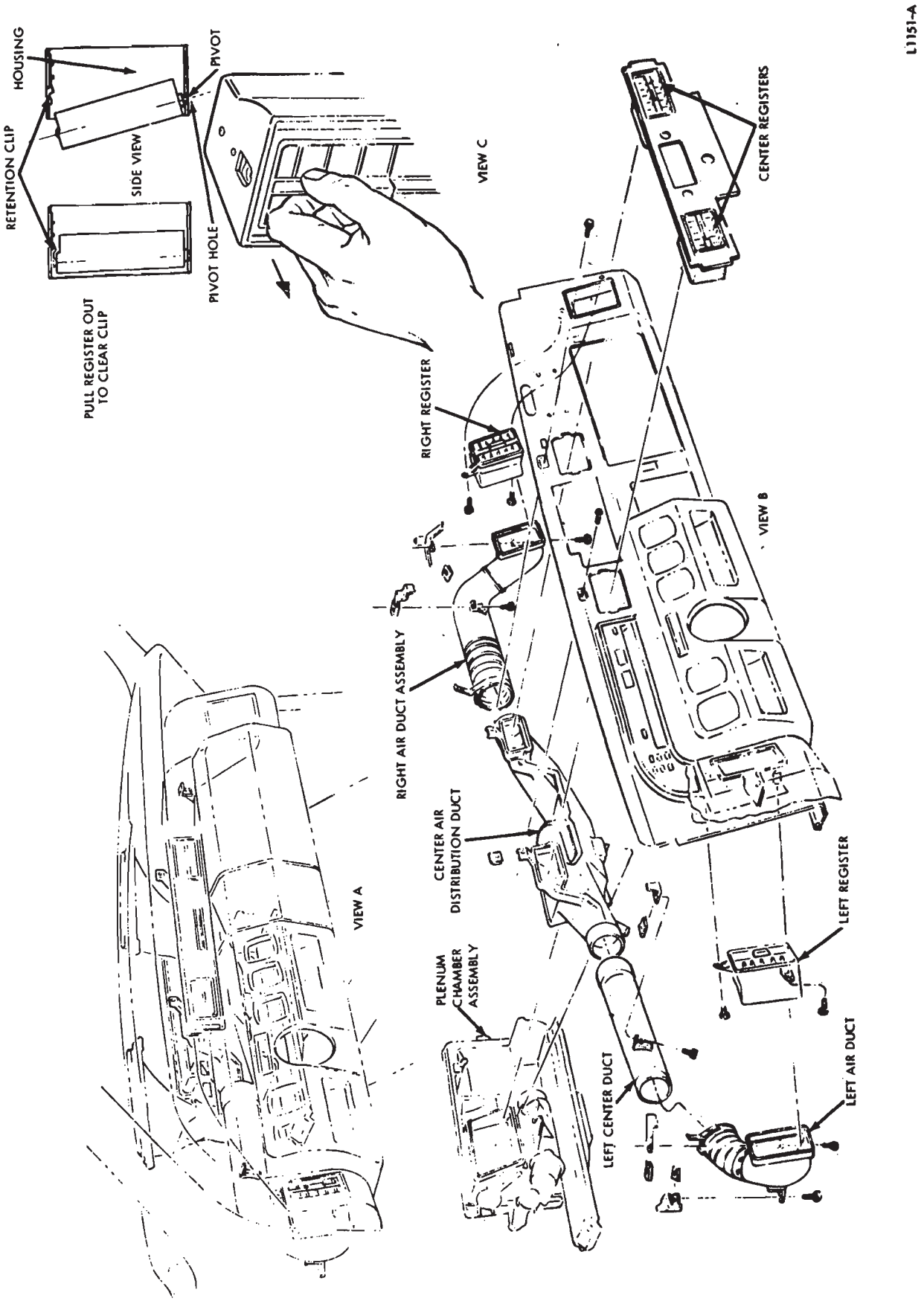


FIG. 52—Register Air Duct Removal—Lincoln Continental

move each nozzle (Fig. 50).

3. Move the defroster nozzles upward through the opening. The defroster ducts will separate from the nozzles.

INSTALLATION

1. Insert each defroster nozzle through the opening. **Make certain that each defroster air duct is positioned properly on the defroster nozzles** and over the right and left plenum chamber air outlet adaptors (Fig. 50).

2. Install the two defroster nozzle-to-dash panel mounting screws.

3. Install the instrument panel upper pad assembly (Group 47).

CONTROL ASSEMBLY

REMOVAL

1. Remove the steering column lower support panel.

2. Lower the steering column.

3. Remove the lower instrument panel pad (Group 47).

4. Remove three knobs from the control assembly (Fig. 51). The control lever knobs are retained with set screws; the blower switch knob with a spring clip.

5. Remove four bezel assembly retainer screws and remove the bezel assembly and retainers.

6. Remove three control head mounting screws, move the control head forward and down under the instrument panel.

7. Disconnect the vacuum hoses (Fig. 9) from the vacuum selector valve and water valve vacuum switch.

8. Disconnect the electrical connectors from the blower control switch and blower cut-off (micro) switch and remove the control head.

INSTALLATION

1. Connect the electrical connectors (Figs. 9 and 19) to the blower control switch and to the blower cut-off switch.

2. Connect the vacuum hoses (Figs. 9 and 18) to the vacuum selector valve and to the water valve vacuum switch.

3. Move the control head up under the instrument panel and rearward into its mounting position (Fig. 51). Install the three control head mounting screws.

4. Position the bezel assembly and install the four bezel assembly retainer screws and bezel retainers.

5. Install the control lever knobs and tighten the set screws. Align the blower switch knob with the blower switch shaft and press the knob on the shaft. Make certain that the spring clip engages, locking the knob on the shaft.

6. Install the lower instrument panel pad (Group 47).

7. Install the steering column and lower support panel.

8. Test the heater control system for proper operation.

AIR DISTRIBUTION DUCTS AND PLENUM CHAMBER

REMOVAL

1. Remove one left center duct-to-instrument panel mounting screw (Fig. 52).

2. Disconnect the left duct flexible hose clamp and slide the left center duct outboard away from the plenum and steering column support upper bracket.

3. Remove two left air duct-to-instrument panel mounting screws.

4. Slide the left duct (elbow) forward away from the register assembly and down from the panel.

5. Remove the glove box.

6. Remove two right air duct assembly-to-instrument panel mounting screws.

7. Disconnect the flexible hose clamp from the center air distribution duct and remove the right air duct assembly.

8. Remove the upper instrument panel pad assembly (Group 47).

9. Remove the lower instrument panel pad assembly.

10. Remove two center air distribution duct-to-instrument panel mounting screws.

11. Disconnect the Temperature Blend Door Vacuum Motor (5) vacuum hose (tan) (Fig. 50).

12. Disconnect the vent/heat door vacuum motor (6) vacuum hoses, upper (6a) orange and side (6b) blue.

13. Disconnect the heat/defrost door vacuum motor (7) vacuum hoses, upper (7a) yellow and side (7b) red.

14. Remove one plenum chamber-to-dash panel mounting screw and washer assembly (upper right corner) (Fig. 50).

15. Remove three plenum chamber mounting flange stud nuts.

16. Remove the defroster nozzles and air ducts. Refer to Defroster Nozzles—Removal Section.

17. Move the plenum chamber rearward to clear the three mounting studs and slide the plenum down and to the right side floor area.

18. Slide the center air distribution duct forward away from the two center registers and down toward the right side and remove it.

INSTALLATION

1. Move the center air distribution duct assembly up and to the left under the instrument panel, and rearward onto the center registers (Fig. 52).

2. Move the plenum chamber assembly up and to the left, under the instrument panel, and position it on the three mounting studs (Fig. 50).

3. Install the three plenum chamber mounting flange stud nuts.

4. Install the one plenum chamber-to-dash panel mounting screw (upper right corner).

5. Install the two center air distribution-to-instrument panel mounting screws (Fig. 52).

6. Install the defroster nozzle air ducts and defroster nozzles. Refer to Defroster Nozzles—Installation Section.

7. Connect the heat/defrost door vacuum motor (7) vacuum hoses, upper (7a) yellow and side (7b) red (Figs. 18 and 50).

8. Connect the vent/heat door vacuum motor (6) vacuum hoses, upper (6a) orange and side (6b) blue.

9. Connect the Temperature Blend Door Vacuum Motor (5) vacuum hose (tan).

10. Install the lower instrument panel pad assembly (Group 47).

11. Install the upper instrument panel pad assembly.

12. Install the right air duct assembly and secure it with the two instrument panel mounting screws.

13. Connect the right air duct flexible hose to the center air distribution duct assembly and tighten the hose clamp.

14. Install the glove box.

15. Slide the left air duct up under the instrument panel and position it on the left register assembly. Secure it with the two left air duct-to-instrument panel mounting screws.

16. Move the left center duct over the steering column support upper bracket and slide it inboard positioning over the center air distribution duct outlet. Secure it with the left center duct-to-instrument panel mounting screw.

17. Slide the flexible hose from the left air duct over the end of the left

center duct and tighten the hose clamp.

18. Test the heater system for proper operation and air leaks.

REGISTERS

Although the two outboard registers in the instrument panel are vertical and the two center registers are horizontal, they are all serviced in the same manner. Refer to Fig. 52, View C. A spring steel tension clip and pivot pin is provided to retain each register in its housing.

REMOVAL

1. Move the slide bar toward the closed position.
   a. Outboard registers—down.
   b. Right center register—to the right.
   c. Left center register—to the left.
2. Pull the register rearward.

INSTALLATION

1. Move the register slide bar toward the closed position (Fig. 52).
2. Insert the pivot end of the register assembly into the pivot hole and press the register forward into the housing until the retention clip snaps into position.

9 SPECIFICATIONS

HEATER

Vehicle	CURRENT DRAW @ 12 VOLTS Blower Motor (High Speed) Heater	Power Vent
Montego, Falcon, Fairlane, Maverick	6.5–8.5 Amp.	–
Ford and Mercury	10.0–11.0 Amp.	–
Thunderbird & Continental Mark III	14–18 Amp.	–
Lincoln Continental	23 Amp.	–
Mustang and Cougar	7.4–9.4 Amp.	7.6–9.6 Amp.

CL1267-A

HEATER AND POWER VENT SPECIFICATION CHART

PART 34-04 Air Conditioning Systems

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln-Continental	Thunderbird	Continental-Mark III
A/C COMPONENTS													
Description and Operation		04-03	04-03	04-03	04-03	04-03	04-03	04-05	04-03	04-03	04-06	04-10	04-10
AC/HEAT DOOR (6) VACUUM MOTOR													
Removal and Installation		04-34	04-34	04-34	04-40	04-49	04-49	04-48	04-49	04-40	04-56	04-56	04-56
Testing		04-04	04-04	04-04	04-06	04-09	04-09	04-10	04-09	04-06	04-21	04-15	04-15
A/C THERMOSTAT (AMBIENT) SWITCH													
Testing		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04-23	N/A	N/A
AIR DISTRIBUTION DUCTS													
Description and Operation		04-03	04-03	04-03	04-03	04-03	04-03	04-05	04-03	04-03	04-07	04-10	04-10
Removal and Installation					04-36					04-36	04-55		
BLOWER MOTOR													
Removal and Installation		04-30	04-30	04-30	04-42	04-49	04-49	04-47	04-49	04-42	04-55	04-59	04-59
Testing		04-21	04-21	04-21	04-21	04-21	04-21	04-21	04-21	04-21	04-23	04-21	04-21
BLOWER MOTOR RESISTOR													
Removal and Installation		04-30	04-30	04-30	04-42					04-12	04-56	04-56	04-56
BLOWER MOTOR SWITCH													
Removal and Installation		04-30	04-30	04-30	04-42	04-49	04-49	04-49	04-49	04-42	04-54	04-58	04-58
CHARGING THE SYSTEM	04-24												
CLUTCH BEARING													
Removal and Installation	04-62												
CLUTCH REPLACEMENT	04-62												
CLUTCH SWITCH													
Removal and Installation		04-30	04-30	04-30	04-39	04-49	04-49	04-48	04-50	04-39	04-54	04-58	04-58
Testing		04-03	04-03	04-03	04-03	04-03	04-03	04-05	04-03	04-03	04-06	04-10	04-10
CLUTCH TESTING	04-21												
CONTROL ASSEMBLY													
Removal and Installation		04-30	04-30	04-30	04-36	04-49	04-49	04-49	04-50	04-36	04-54	04-58	04-58
Testing		04-04	04-04	04-04	04-06	04-09	04-09	04-10	04-09	04-06	04-21	04-15	04-15
CONTROL CABLES													
Adjustment						04-26	04-26		04-26				
Removal and Installation		04-31	04-31	04-31		04-50	04-50		04-50			04-57	04-57
COMPRESSOR													
Description and Operation	04-15										04-10		
Removal and Installation	04-59												
COMPRESSOR OIL LEVEL													
Adjustment	04-24												
Testing	04-24												
CONDENSER													
Description and Operation	04-15										04-10		
Removal and Installation					04-40	04-50	04-50	04-50	04-50	04-40		04-57	04-57
CRANKSHAFT SEAL													
Removal and Installation	04-61												
DEFROSTER NOZZLES													
Description and Operation		04-03	04-03	04-03	04-03	04-03	04-03	04-05	04-03	04-03	04-07	04-10	04-10
Removal and Installation		04-29	04-29	04-29	04-36					04-36	04-54		

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln-Continental	Thunderbird	Continental-Mark III
DISCHARGING THE SYSTEM	04-23												
DRIVE BELT													
Adjustment	04-63												
Removal and Installation	04-63												
ELECTRICAL SYSTEM													
Testing	04-18												
EVACUATING SYSTEM	04-23												
EVAPORATOR CORE													
Description and Operation	04-14										04-08	04-14	04-14
Removal and Installation		04-27	04-27	04-27	04-38	04-46	04-46		04-46	04-38	04-50	04-57	04-57
EVAPORATOR HOUSING (CASE)													
Removal and Installation					04-36	04-42	04-42	04-45	04-42	04-36	04-52		
EXPANSION VALVE													
Description and Operation	04-15										04-08		
Removal and Installation		04-29	04-29	04-29	04-39	04-46	04-46	04-46	04-46	04-39	04-55	04-57	04-57
HEAT/DEFROST DOOR (7) VACUUM MOTOR													
Removal and Installation		N/A	N/A	N/A	04-40	04-49	04-49	04-48	04-49	04-40	04-56	04-56	04-56
Testing		N/A	N/A	N/A	04-06	04-09	04-09	04-10	04-09	04-06	04-21	04-15	04-15
HEATER CORE													
Removal and Installation		04-29	04-29	04-29	04-38	04-46	04-46		04-46	04-38	04-55	04-57	04-57
HEATER HOSES													
Removal and Installation		04-36	04-36	04-36	04-42	04-46	04-46	04-46	04-46	04-42	04-55	04-56	04-56
HEATER WATER VALVE (4) VACUUM MOTOR													
Testing		04-04	04-04	04-04	04-06	04-09	04-09	04-10	04-09	04-06	04-21	04-15	04-15
ISOLATING COMPRESSOR	04-26												
LEAK TESTING	04-19												
OUTSIDE AIR DOOR (1) VACUUM MOTOR													
Testing		04-04	04-04	04-04	04-06	04-09	04-09	04-10	04-09	04-06	04-21	04-15	04-15
PERFORMANCE TEST						04-19	04-19		04-19				
RECEIVER-DEHYDRATOR TANK													
Description and Operation	04-14												
Removal and Installation					04-39	04-50	04-50		04-50	04-39	04-55	04-57	04-57
Testing	04-21												
RECIRCULATING AIR DOOR (2) VACUUM MOTOR													
Removal and Installation		04-32	04-32	04-32	04-40			04-48		04-40			
Testing		04-04	04-04	04-04	04-06	04-09	04-09	04-10	04-09	04-06	04-21	04-15	04-15
REFRIGERANT HOSES													
Removal and Installation		04-36	04-36	04-36	04-42	04-46	04-46	04-46	04-46	04-42	04-55	04-56	04-56

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln-Continental	Thunderbird	Continental-Mark III
RESTRICTOR AIR DOOR (3) VACUUM MOTOR Testing		04-04	04-04	04-04	04-06	N/A	N/A	N/A	N/A	04-06	04-21	04-15	04-15
SAFETY PRECAUTIONS	04-18												
SIGHT GLASS Description and Operation	04-20										04-08	04-17	04-17
SPECIFICATIONS	04-63												
SUCTION THROTTLING VALVE Description and Operation		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04-08	N/A	N/A
TEMPERATURE BLEND DOOR (5) VACUUM MOTOR Removal and Installation		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04-56	N/A	N/A
Testing		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04-21	N/A	N/A
THERMOSTATIC (ICING) SWITCH Removal and Installation		04-29	04-29	04-29	04-39	04-47	04-47	04-47	04-47	04-39	N/A	04-58	04-58
Testing	04-20										N/A		
VACUUM SYSTEM Testing		04-05	04-05	04-05	04-07	04-09	04-09	04-11	04-09	04-07	04-22	04-16	04-16
VACUUM MOTORS Adjustment	04-26												
Removal and Installation		04-31	04-31	04-31	04-40	04-49	04-49	04-48	04-49	04-40	04-56	04-56	04-56
VALVE PLATE Removal and Installation	04-60												
WATER VALVE VACUUM SWITCH Adjustment						04-26	04-26		04-26				

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION AND OPERATION

FORD, MERCURY AND METEOR

The heater-air conditioner is an integral unit and is mounted on the dash panel in the engine compartment. The system uses fresh air for heater operation and fresh or recirculated air for air conditioner operation.

Cool air is discharged through the instrument panel registers with a small amount deflected to the floor area. When the system is set for heater operation, heated air is discharged to the floor area and/or the defroster nozzles. Operation procedures for the heater-air conditioner are given in the vehicle owners manual.

The heater-air conditioner control setting vacuum motor application chart is shown in Fig. 1. The vacuum system diagram is shown in Fig. 2 and the vacuum schematic is shown in Fig. 3.

MUSTANG AND COUGAR

The heater-air conditioner is an integral unit and is mounted on the dash panel under the instrument panel. The system uses fresh air for heater operation and fresh or recirculated air for air conditioner operation. Recirculated air is used only for Max A/C operation. Outside air is used for Fresh A/C operation.

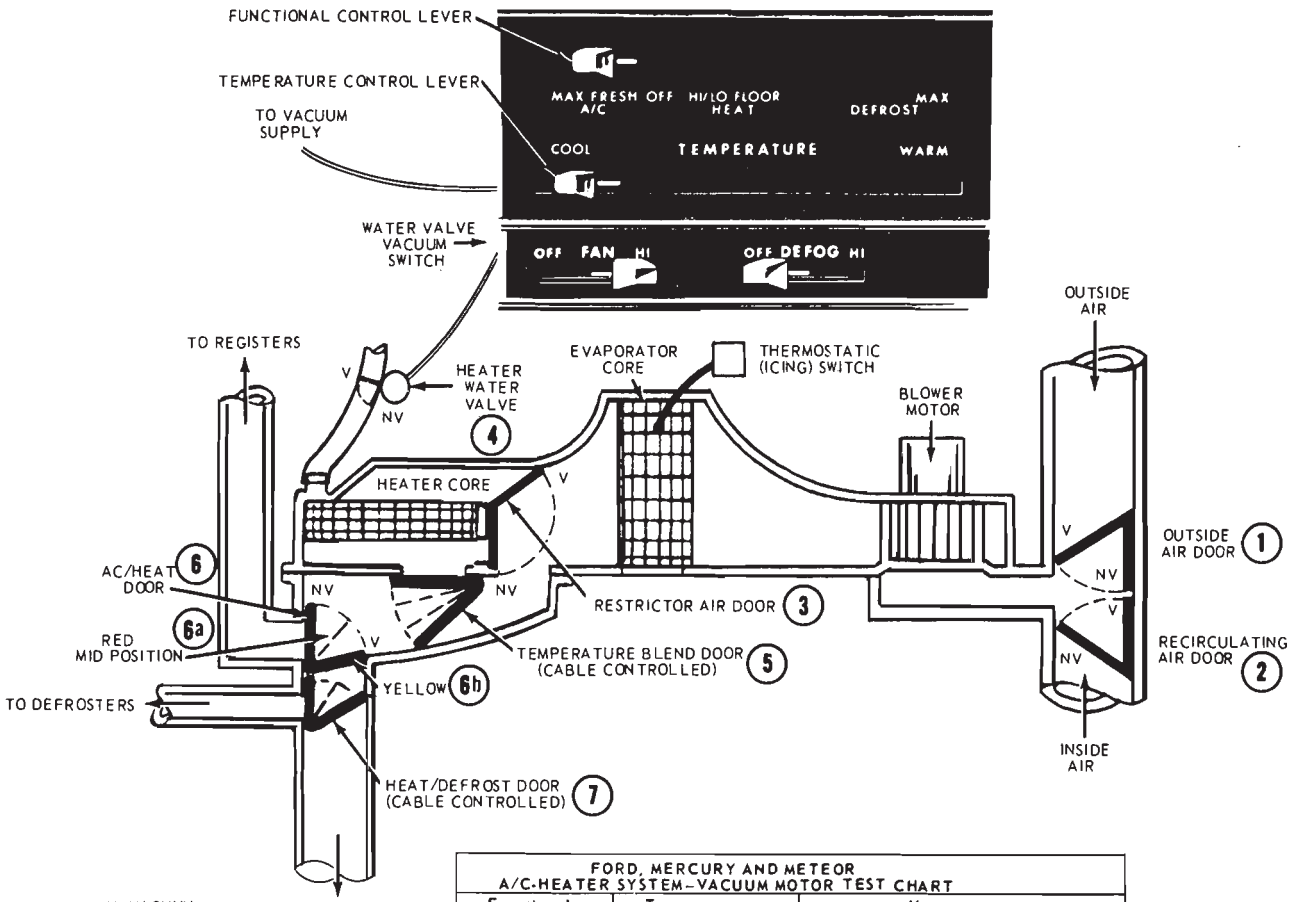
Cool air is discharged through the instrument panel registers when the system is set for A/C operation. When the system is set for heater operation, heated air is discharged to the floor area with a small amount going to the defrosters. Operation procedures for the heater-air conditioner are given in the vehicle owners manual.

The heater-air conditioner control setting vacuum application chart is shown in Fig. 4. The vacuum system diagram is shown in Fig. 5.

MONTEGO, FALCON AND FAIRLANE

SYSTEM OPERATION

Outside air is drawn in from the cowl through the outside air door (1) into the right vent duct, into the blower scroll, forced through the



FORD, MERCURY AND METEOR
A/C-HEATER SYSTEM-VACUUM MOTOR TEST CHART

Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum					
MAX A/C	COOL	1	2	3	4	6a	6b
	WARM	1	2	3	–	6a	6b
FRESH A/C	COOL	–	–	3	4	6a	6b
	WARM	–	–	3	–	6a	6b
OFF	WARM	1	2	–	–	–	–
HI/LO HEAT	WARM	–	–	–	–	6a	–
FLOOR HEAT	WARM	–	–	–	–	–	–
MAX DEFROST	WARM	–	–	–	–	–	–

FIG. 1—Control Setting Vacuum Motor Application Chart—Ford, Mercury and Meteor

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evaporator core, through and/or around the heater core then mixed and discharged through either the A/C air duct or the heat (1) defrost plenum air outlet, depending on the position on the control setting.

The temperature blend door (5) is located to the left of the evaporator core and to the rear of the heater core in the left side of the case.

The AC/heat door (6) is located in the left rear corner of the case, and the heat/defrost door (7) is in the plenum chamber attached to the rear face of the case assembly.

A single defroster nozzle leading to two openings in the instrument panel is attached directly to the plenum chamber with a clip.

The A/C registers located in the lower instrument panel are located; one to the far left; one to the far right; and a double register in the center.

The A/C registers are barrel type registers with vertical vanes.

The blower motor and wheel assembly is located in the blower scroll immediately forward of the right vent duct assembly. The evaporator core is located in a diagonal position in the center of the case; and the heater core in a diagonal position in the left side of the case.

CONTROLS

The air temperature is controlled by the location of the temperature lever in the control assembly (Figs. 6, 7 and 8). As the lever is moved from cool to warm, a cable moves the temperature blend door (5) from maximum cooling position to minimum cooling position. With the functional control lever in either A/C position, the heater water valve (4) is closed. A vacuum switch on the evaporator case is actuated to supply vacuum to close the heater water valve (4) when the temperature lever is in the maximum cool setting and the functional control lever is in either A/C position. Refer to the A/C-Heater Control Setting Chart, Fig. 9.

Air distribution is controlled by the A/C-heater lever in the control panel assembly and by the blower switch setting. The lever actuates a vacuum selector switch on the control assembly which in turn operates vacuum actuators at the outside (1) or recircu-

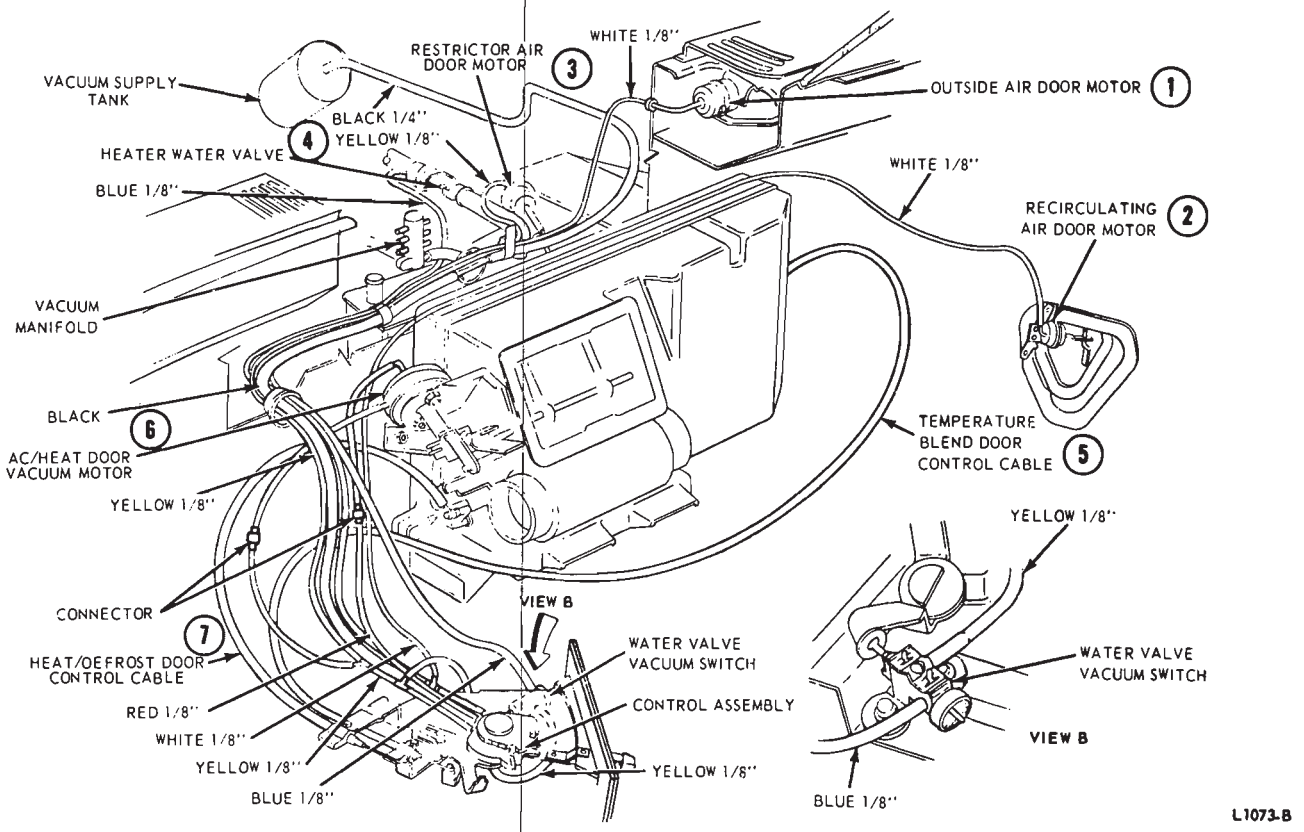


FIG. 2—Vacuum System Diagram—Ford, Mercury and Meteor

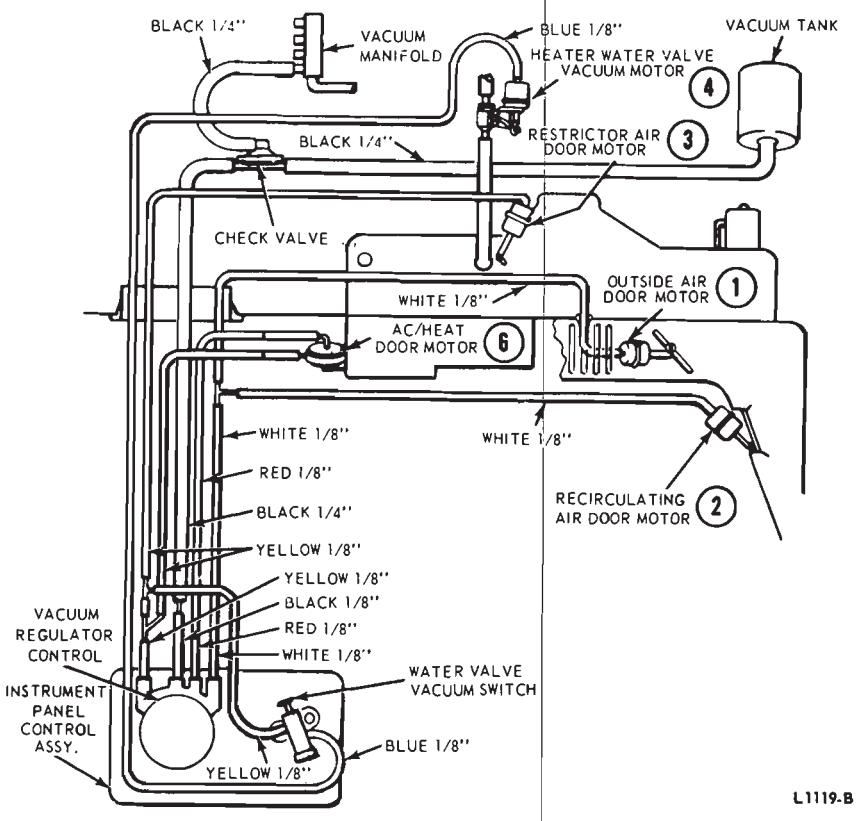


FIG. 3—Vacuum System Schematic—Ford, Mercury and Meteor

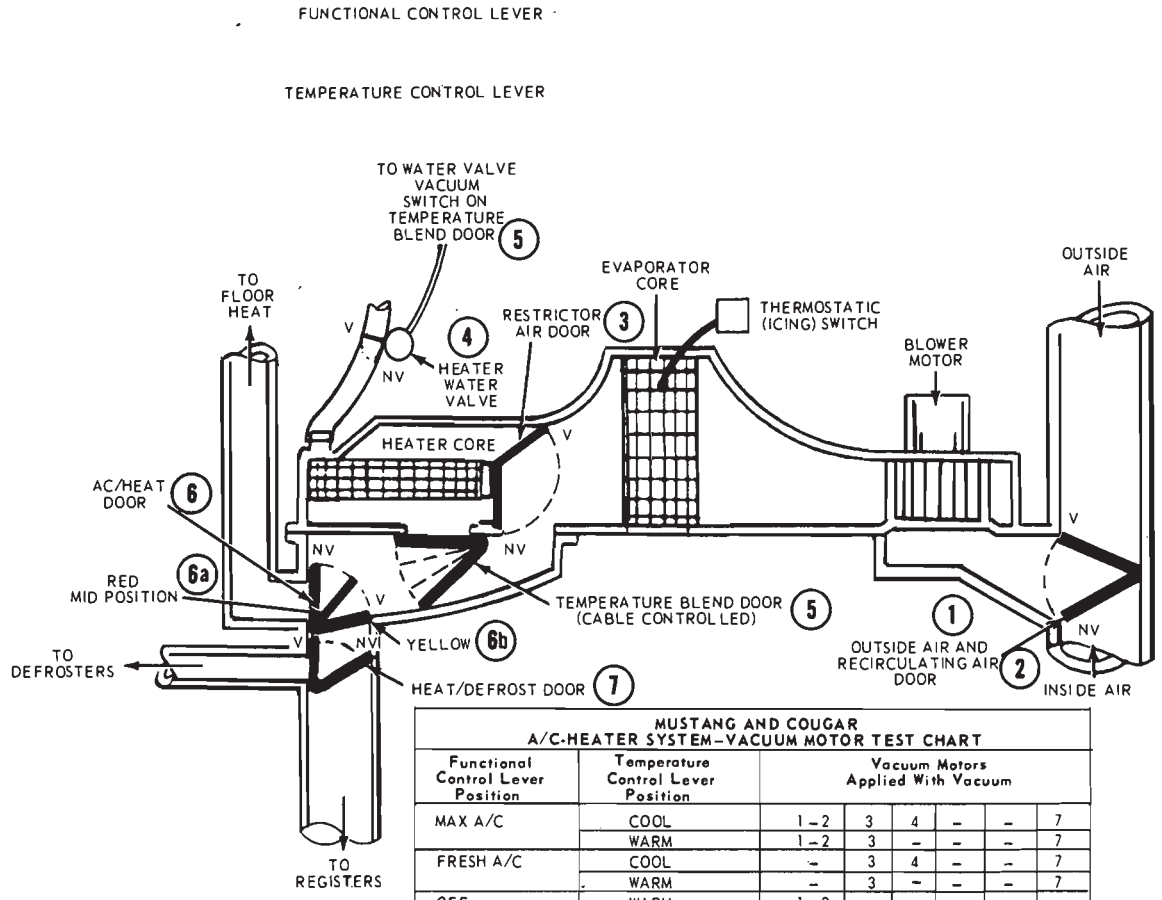
lating (2) air door in the right vent duct; the AC/heat door (6) in the case, and the heat/defrost door (7) in the plenum chamber.

The blower switch must be on to engage the compressor clutch for air conditioning. With the A/C-heater lever in either air conditioning position, the AC/heat door (6) is on the air conditioning position (vacuum) and vacuum is applied to the compressor clutch switch (located in the engine compartment at the heater water valve (4)) to close the circuit and engage the clutch.

Three speeds are provided for the blower fan with a four position switch in the control assembly and a resistor assembly located in the blower housing. The resistor in the blower motor circuit controls the low and medium blower motor speeds.

HEATER-AIR CONDITIONER—MAVERICK

The heater-air conditioner is an integral unit and is mounted on the dash panel. The system uses fresh air for heater operation and fresh or recirculated air for the air conditioner operation. Recirculated air is used for Max. A/C operation. Outside air is



MUSTANG AND COUGAR
A/C-HEATER SYSTEM-VACUUM MOTOR TEST CHART

Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum					
MAX A/C	COOL	1-2	3	4	-	-	7
	WARM	1-2	3	-	-	-	7
FRESH A/C	COOL	-	3	4	-	-	7
	WARM	-	3	-	-	-	7
OFF	WARM	1-2	-	-	-	-	-
HI/LO HEAT	WARM	-	-	-	6a	-	7
FLOOR HEAT	WARM	-	-	-	6a	6b	7
FOG DEF	WARM	-	-	-	6a	-	-
ICE DEF	WARM	-	-	-	-	-	-

L1277-A

FIG. 4—Control Setting Vacuum Motor Application Chart—Mustang and Cougar

used for fresh A/C operation.

Cool air is discharged through the instrument panel registers when the system is set for A/C operation. When the system is set for heater operation, heated air is discharged to the floor area, with a small amount going to the defrosters. When the system is set for defroster operation, half the heated air is discharged to the floor area and half to the windshield when the control is set at the Fog position. When the control is set at the Ice position, all the heated air is discharged to the windshield.

The heater-air conditioner control setting vacuum motor application chart is shown in Fig. 10. The vacuum system diagram is shown in Fig. 11.

LINCOLN CONTINENTAL

The manual air conditioning and heating system receives outside air through the Outside Air Door (1) in the upper cowl, or recirculated air through the Recirculating Air Door (2) in the right cowl side panel (Fig. 12).

SYSTEM COMPONENTS

Controls

1. The functional control lever (upper) actuates a vacuum selector on the control head assembly (Fig. 13) that controls the vacuum motors at the Outside Air Door (1), Recirculating Air Door (2), AC/Heat Door (6) and Heat/Defrost Door (7).

2. The temperature control lever (lower) actuates a vacuum regulator on the control assembly that modulates vacuum to the Temperature Blend Door (5) and Restrictor Air Door (3) vacuum motors, from full vacuum in **COOL** position to no vacuum in **WARM** position. The water valve vacuum switch on the control assembly is also actuated when the temperature control lever is in **COOL** position to close the water valve with vacuum.

3. The blower switch is located to the right of the control levers in the control assembly. Turn the blower switch knob clockwise from **LOW** through two medium speeds to **HIGH**

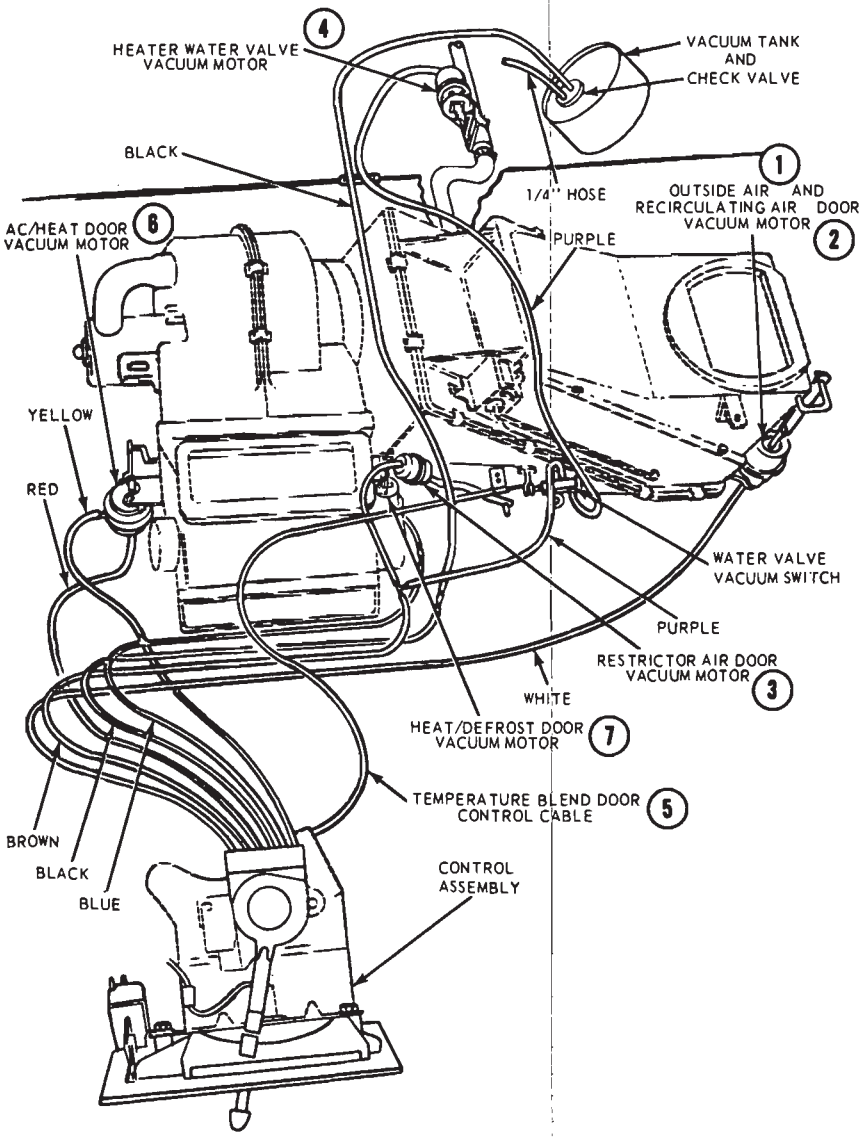


FIG. 5—Vacuum System Diagram—Mustang and Cougar

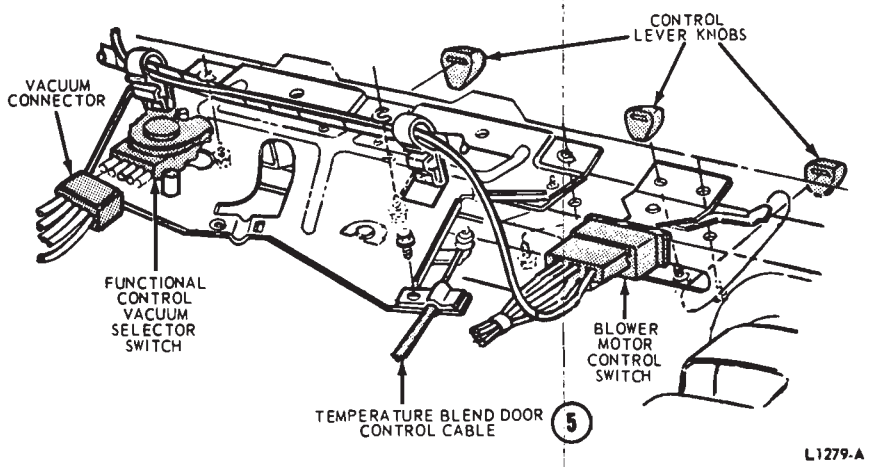


FIG. 6—Montego A/C-Heater Control Assembly

to control air volume. To turn the blower **OFF**, move the functional control lever to the **OFF** position.

4. Two micro switches adjacent to the vacuum selector are actuated by the selector cam plate, one to control the A/C clutch; one to control the blower switch. The A/C clutch is engaged and the blower switch is **ON** in all functional control lever positions except **OFF**.

5. The Heater Water Valve and vacuum motor assembly (4) is located immediately outside the evaporator case assembly in the heater inlet hose.

6. The blower motor resistor assembly is located on the front surface of the evaporator case in a perforated metal housing.

Air Conditioning Registers and Air Ducts

The center air duct seats firmly over the AC/Heat door (6) opening in the rear surface of the plenum chamber. Two rectangular openings in the duct connect to the center registers, and round openings on each side of the duct lead to the outboard registers by means of rigid air ducts.

Defroster Nozzles

The right and left defroster nozzles are connected to the plenum chamber with rigid air ducts. Defroster nozzle extensions attached to openings in the upper instrument panel pad assembly seat firmly over the right and left nozzles.

Evaporator Case Assembly

The evaporator case assembly is located on the engine side of the dash panel to the right of the centerline. The blower motor and wheel is in the blower scroll under the right front fender. The case contains the evaporator core, heater core and vacuum operated heater core Restrictor Air Door (3).

Plenum Chamber Assembly

The plenum chamber located under the instrument panel contains the Temperature Blend Door (5), AC/Heat Door (6) and Heat/Defrost Door (7). Two rectangular openings in the dash panel provide air passage from the evaporator case into the plenum. An air distribution duct attached to an opening in the lower plenum provides air distribution to the front floor area and also to the rear

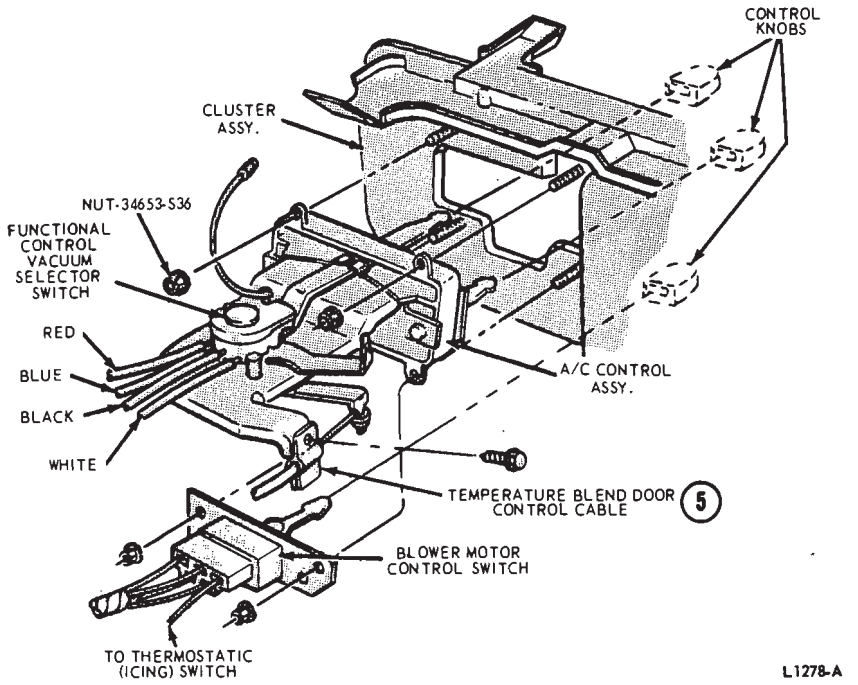


FIG. 7—Falcon A/C-Heater Control Assembly

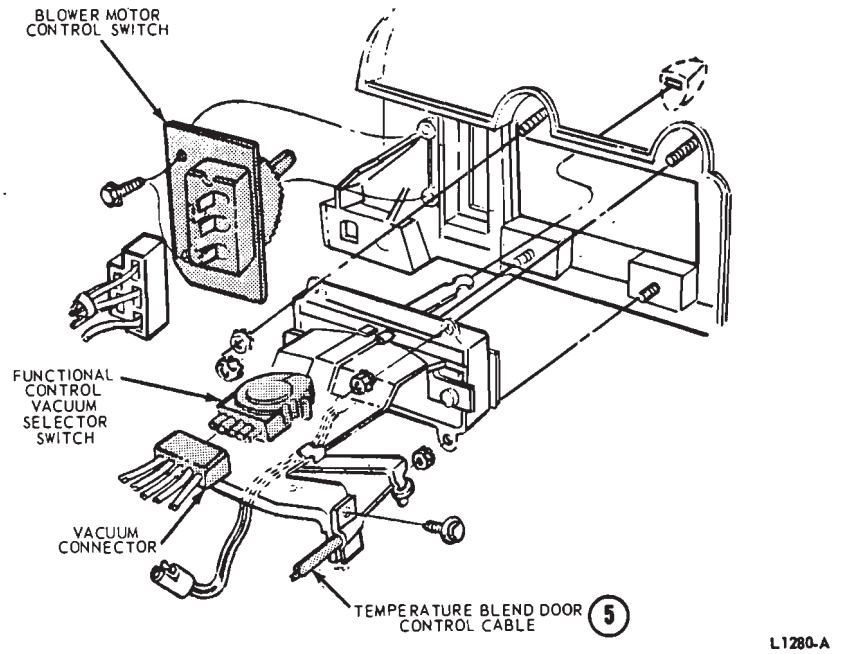


FIG. 8—Fairlane A/C-Heater Control Assembly

seat duct. Two round openings on the plenum air distribution chamber are provided to discharge air to the right and left defroster nozzles.

REFRIGERANT SYSTEM COMPONENTS

Evaporator Core

The evaporator core is located in the center of the evaporator case. An external liquid bleed line leads to the suction throttling valve outside the case.

Expansion Valve

The function of the expansion valve (Fig. 14) is to automatically regulate the flow of refrigerant into the evaporator, and is the dividing point in the system between the high and low pressure liquid refrigerant.

The temperature sensing bulb, clamped to the outlet tube on the evaporator measures the temperature of the evaporator outlet tube and transmits the temperature variation to the expansion valve.

An external equalizer line connects the expansion valve to the suction throttling valve. The equalizer line is used primarily to prevent prolonged or constant operation of the compressor under conditions where it is not receiving enough refrigerant. The equalizer line functions to permit the outlet pressure of the suction throttling valve to be imposed on the diaphragm of the expansion valve.

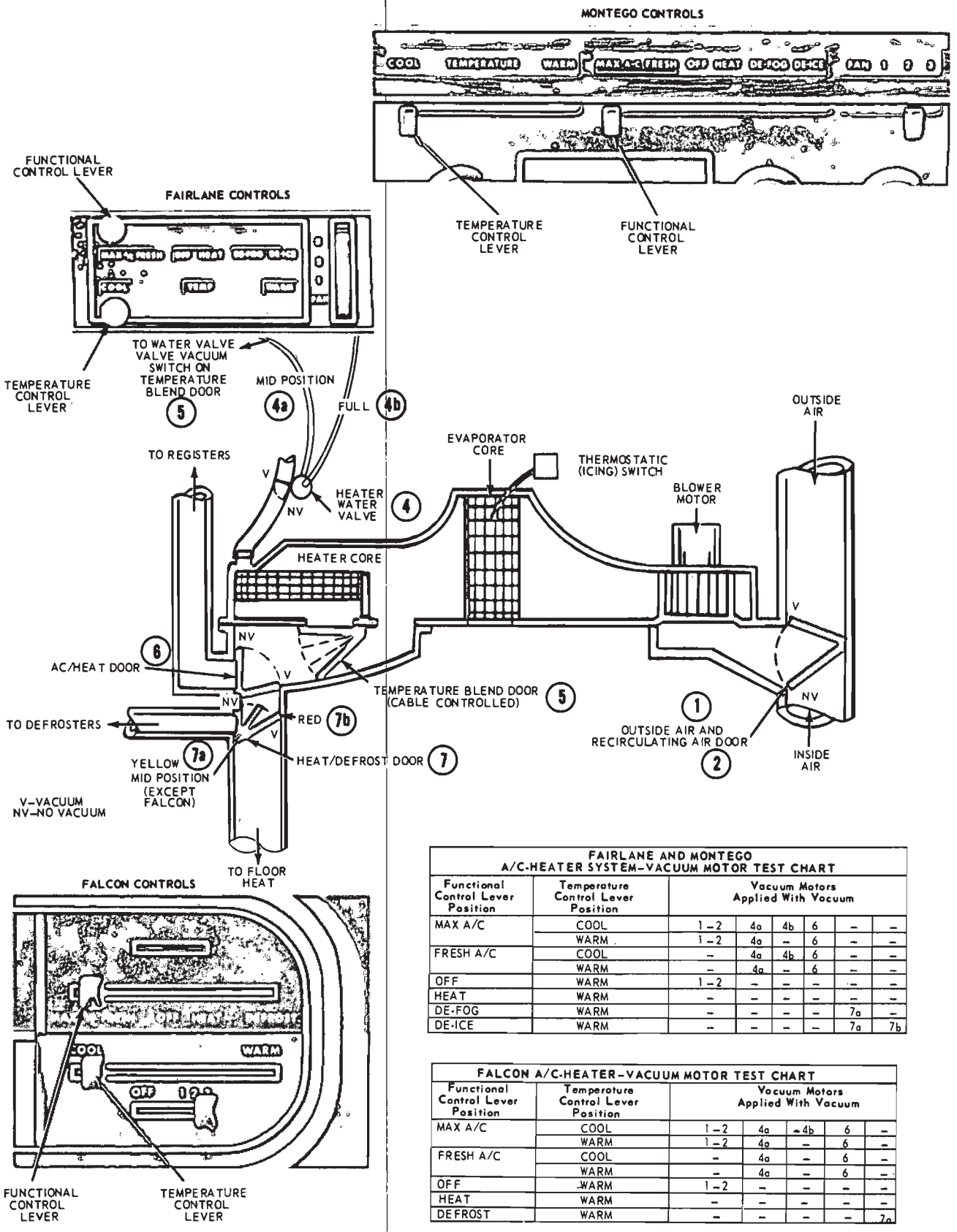
When the outlet pressure of the suction throttling valve drops below a predetermined pressure, this decrease in pressure is also transmitted to the diaphragm of the expansion valve, via the equalizer line. The expansion valve is caused to open and flood refrigerant through the evaporator, thereby resulting in an increase in the evaporator pressure. This action only occurs during times when the compressor capacity becomes greater than the evaporator output with the resultant drop in suction throttling valve outlet pressure.

Suction Throttling Valve

The suction throttling valve (Fig. 15) regulates the pressure inside the evaporator and thereby affects the air temperature at the instrument panel outlets. The valve has a sealed inner chamber which controls the pressure regulating mechanism of the valve independently of the exterior atmospheric pressure. This design insures that the valve does not change its calibration as the system is operated in various altitudes. It should be remembered; however, that any gauge used to check the valve pressure will not be free from the effect of atmospheric pressure. For this reason it might appear that it is the pressure within the valve that is changing. Actually the reverse is true. The pressure within the valve remains unaffected by atmospheric variations, while the gauge used to read these pressures is affected by atmospheric pressure.

Sight Glass

The sight glass is located in the liquid line between the expansion valve and the receiver.



FAIRLANE AND MONTEGO A/C-HEATER SYSTEM–VACUUM MOTOR TEST CHART							
Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum					
MAX A/C	COOL	1–2	4a	4b	6	–	–
	WARM	1–2	4a	–	6	–	–
FRESH A/C	COOL	–	4a	4b	6	–	–
	WARM	–	4a	–	6	–	–
OFF	WARM	1–2	–	–	–	–	–
HEAT	WARM	–	–	–	–	–	–
DE-FOG	WARM	–	–	–	–	7a	–
DE-ICE	WARM	–	–	–	–	7a	7b

FALCON A/C-HEATER–VACUUM MOTOR TEST CHART						
Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum				
MAX A/C	COOL	1–2	4a	4b	6	–
	WARM	1–2	4a	–	6	–
FRESH A/C	COOL	–	4a	–	6	–
	WARM	–	4a	–	6	–
OFF	WARM	1–2	–	–	–	–
HEAT	WARM	–	–	–	–	–
DEFROST	WARM	–	–	–	–	7a

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FIG. 9—Falcon, Fairlane, and Montego Control Setting Vacuum Motor Application Chart

Condenser and Receiver Assembly

The condenser and receiver assemblies are located forward of the radiator core.

Air Conditioner Compressor

The compressor is located on the left front corner of the engine in a horizontal position. The compressor drive belt arrangement is shown in Fig. 64.

THUNDERBIRD AND CONTINENTAL MARK III

The manual air conditioner and heater system is an integral system receiving outside air from the cowl air intake through the outside air door (1), or recirculated air through the recirculating air door (2), in the right cowl side panel.

Air is discharged into the passenger compartment through the same registers and ducts that are used in the heating and forced ventilation system.

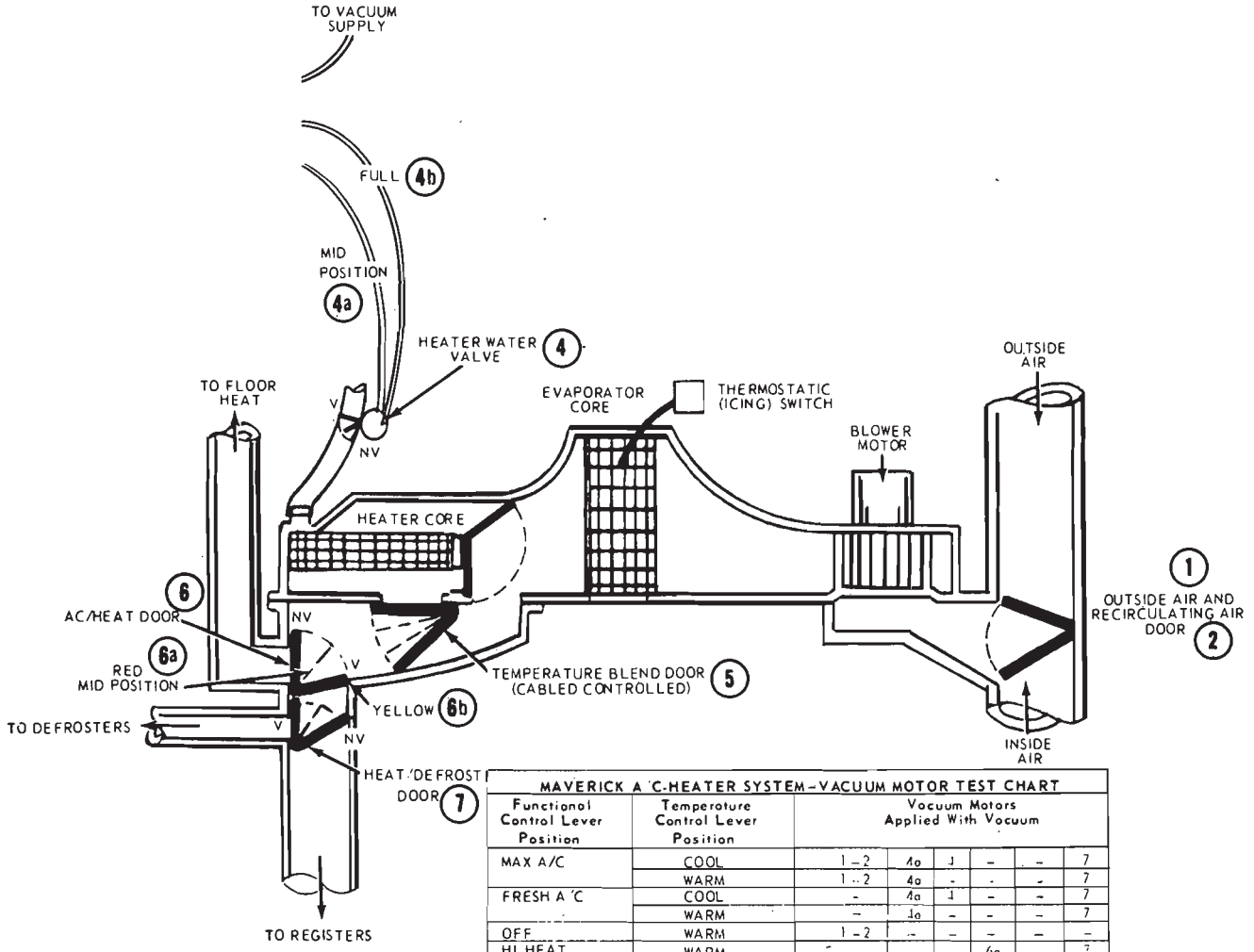
The basic difference between the A/C-heater system and the heater and forced ventilation system is the A/C components and the operation of the outside air (1) and recirculating air (2) door.

CONTROL OPERATION

The control assembly is located in the same place as the control assembly used in the heater and forced ventilation system. Replacement procedures are the same for both control assemblies (See Heating System, Part 34-03).

The functional control (upper) lever (Figs. 16, 17, 18 and 19), actuates a vacuum regulator that controls vacuum motors at the outside air (1) recirculating air (2) door, AC/Heat Door (6), heat/defrost door (7) restrictor air door (3), and the heater water valve (4). A cam plate on the regulator also actuates a micro switch to control the A/C clutch. The switch is normally open in all control positions other than the A/C position.

The temperature control (lower) lever operates a Bowden cable that controls the temperature blend door (5) in the plenum chamber and mixes the air through the evaporator core with the warm air through the heater



MAVERICK A/C-HEATER SYSTEM-VACUUM MOTOR TEST CHART

Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum					
MAX A/C	COOL	1-2	4a	4	-	-	7
	WARM	1-2	4a	-	-	-	7
FRESH A/C	COOL	-	4a	4	-	-	7
	WARM	-	4a	-	-	-	7
OFF	WARM	1-2	-	-	-	-	-
HI HEAT	WARM	-	-	-	6a	-	7
LO HEAT	WARM	-	-	-	6a	6b	-
FOG DEF	WARM	-	-	-	6a	-	-
ICE DEF	WARM	-	-	-	-	-	-

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FIG. 10—Maverick A/C-Heater Control Setting Vacuum Motor Application Chart

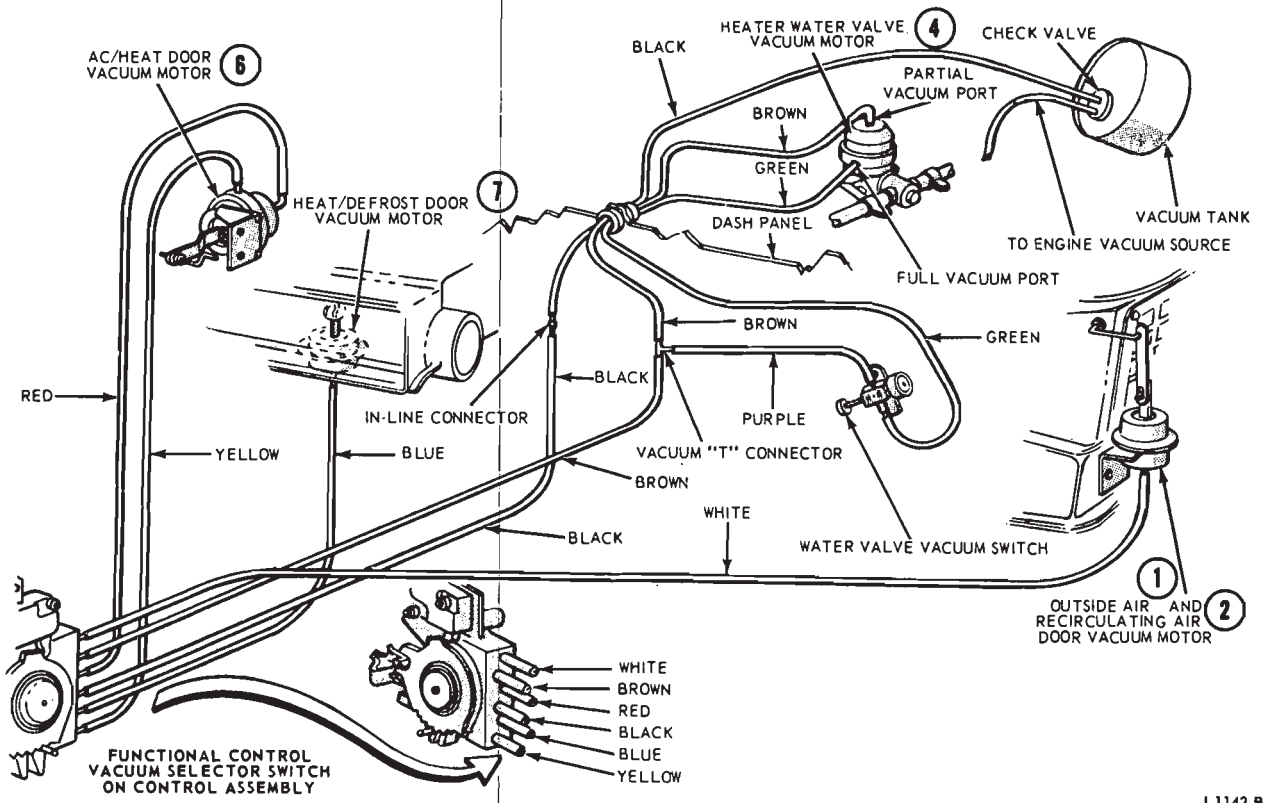


FIG. 11—Vacuum System—Maverick

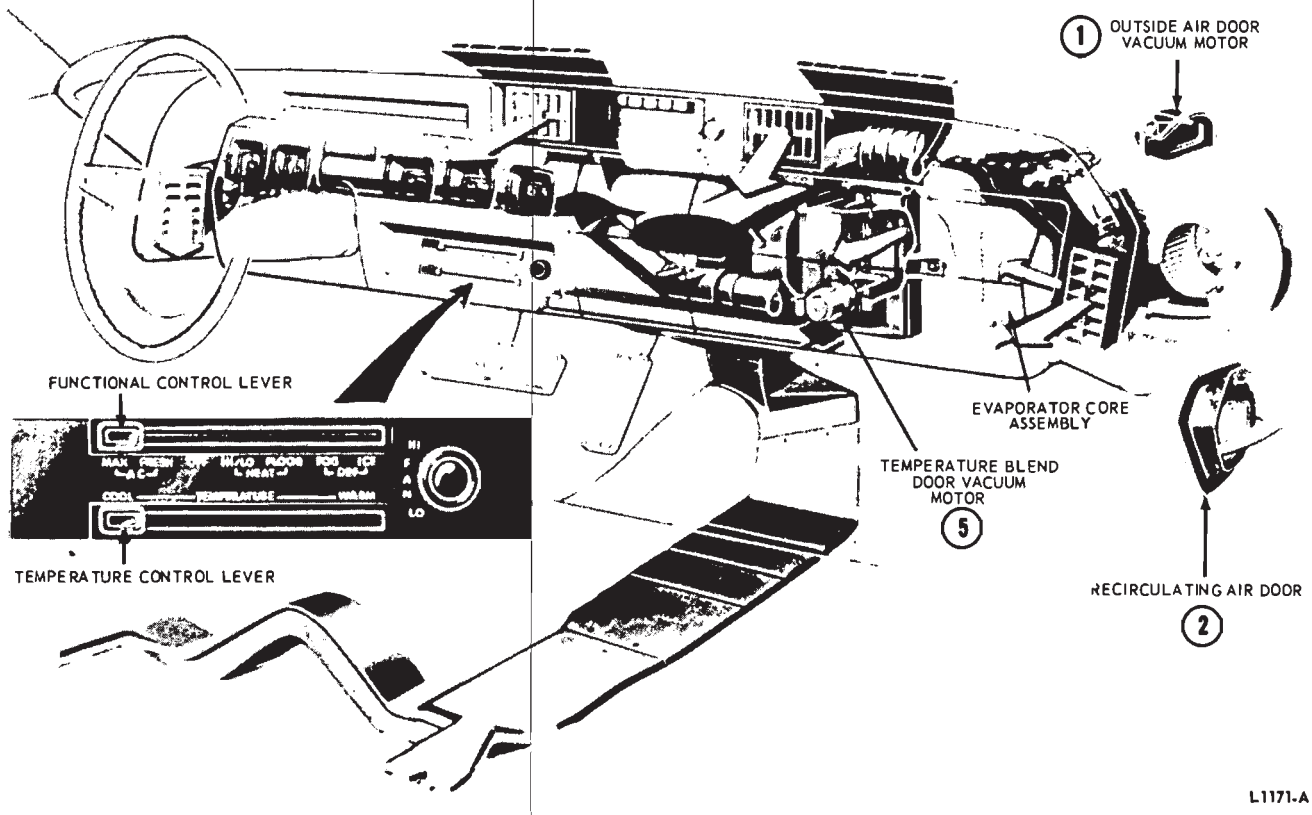


FIG. 12—Manual A/C-Heater System Air Flow (Maximum A/C Position)—Lincoln Continental

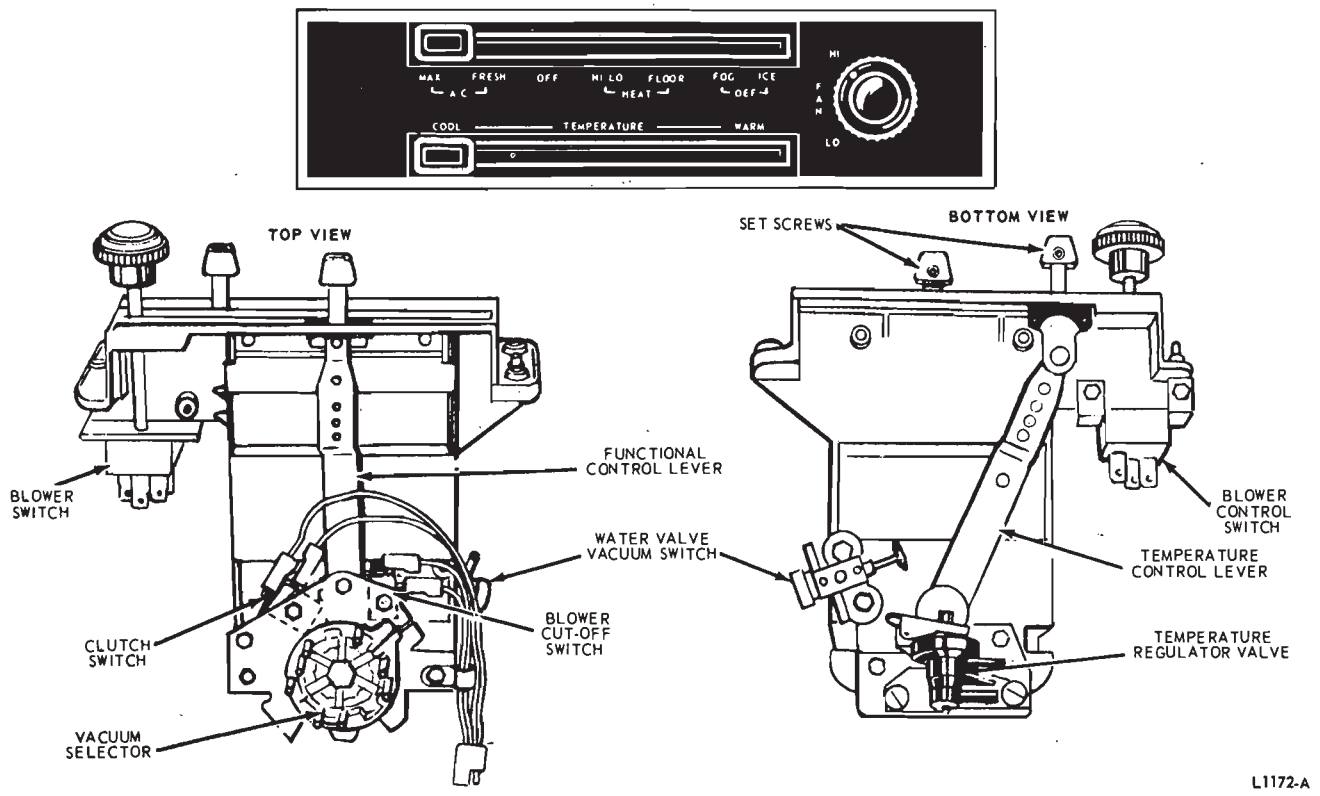


FIG. 13—Manual A/C-Heater Control Assembly—Lincoln Continental

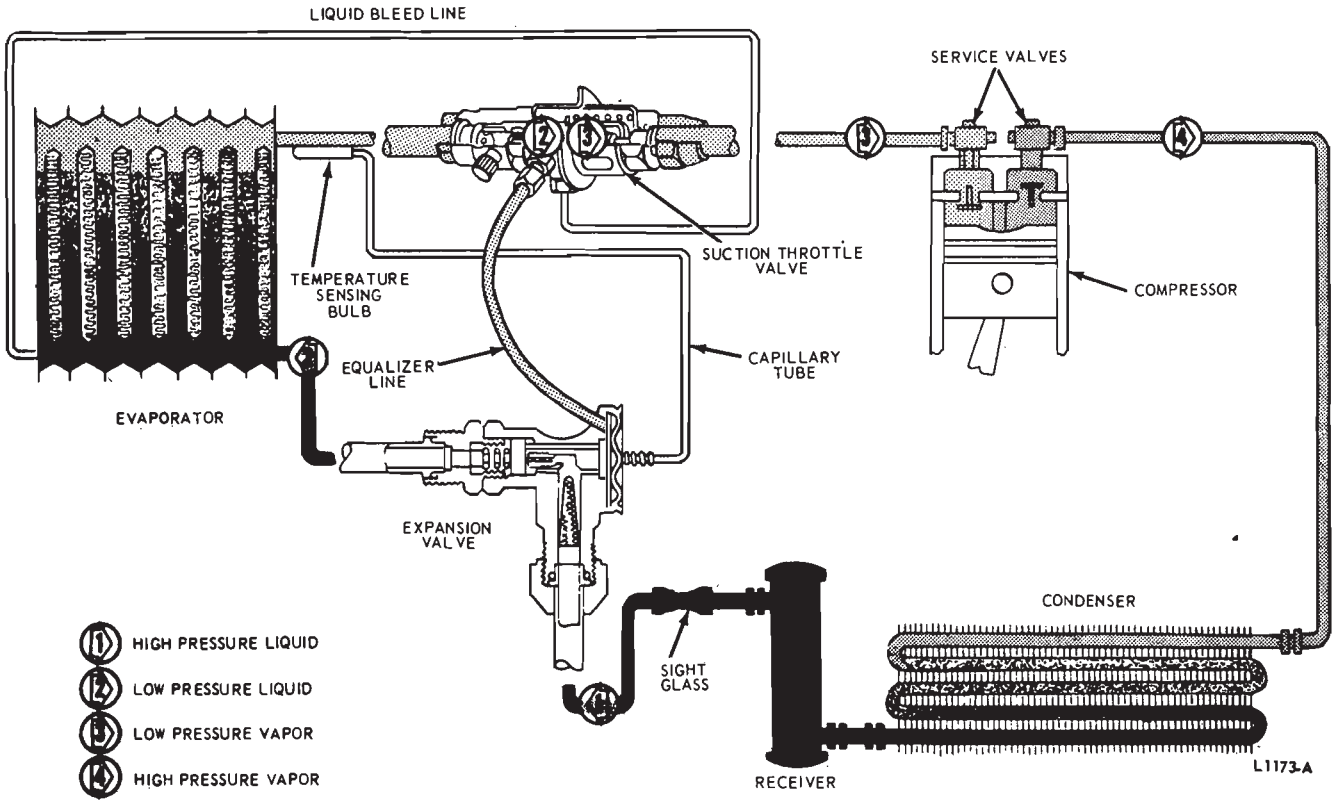
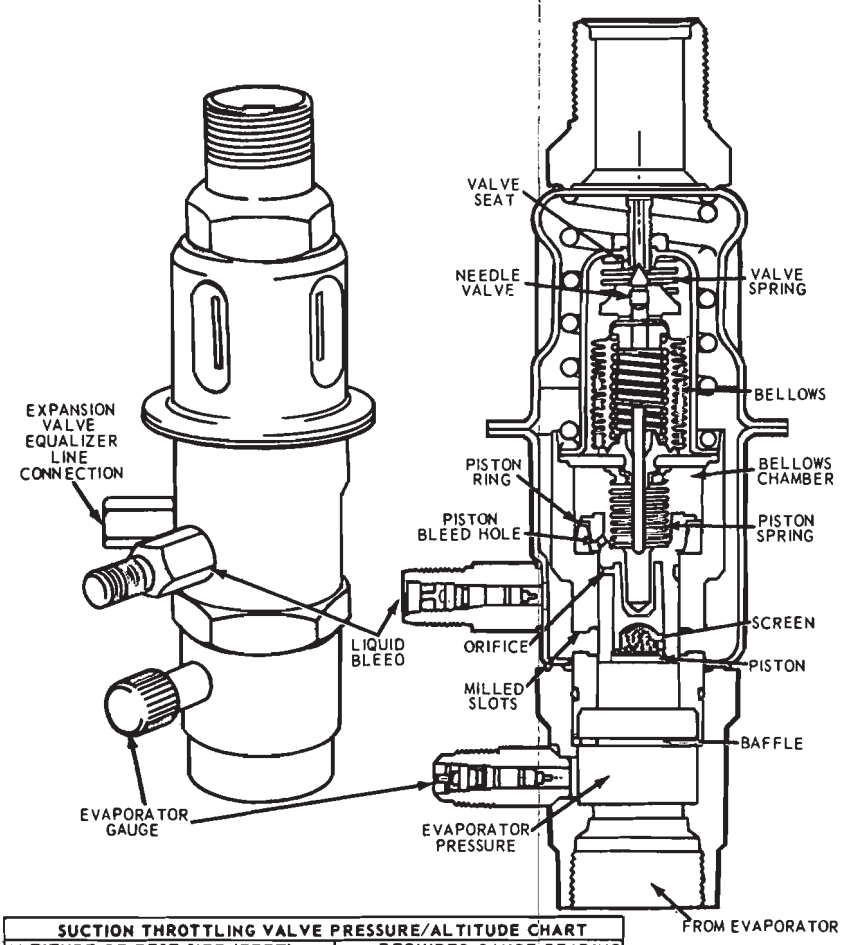


FIG. 14—A/C Refrigeration Circuit Diagram



SUCTION THROTTLING VALVE PRESSURE/ALTITUDE CHART	
ALTITUDE OF TEST SITE (FEET)	REQUIRED GAUGE READING
0 feet (sea level)	28.5 ± 1 psi
1,000 feet	29.0 ± 1 psi
2,000 feet	29.5 ± 1 psi
3,000 feet	30.0 ± 1 psi
4,000 feet	30.5 ± 1 psi
5,000 feet	31.0 ± 1 psi
6,000 feet	31.4 ± 1 psi
7,000 feet	31.8 ± 1 psi
8,000 feet	32.3 ± 1 psi
9,000 feet	32.7 ± 1 psi
10,000 feet	33.2 ± 1 psi

L1174-A

FIG. 15—Suction Throttling Valve and Pressure/Altitude Chart

core in direct proportion to the temperature blend door (5) setting or control requirements.

A vacuum water valve switch located on the bottom of the control assembly is actuated by the temperature control lever in the COOL position to close the heater water valve (4). The heater water valve (4) is also closed in the OFF position of the functional control by vacuum control in the select or regulator.

A three-speed blower switch located under the temperature control lever of the head assembly controls air velocity and **must be turned on to engage the A/C clutch for air conditioning.** An optional rear window defogger switch is mounted to the right of the blower switch (Fig. 16). (See Heating System, Part 34-03 for information on the rear window defogger).

AIR FLOW

Air is drawn into the system by the blower motor from the cowl air intake through the outside air door (1) (upper control in the AC-FRESH position); or through the recirculating air door (2) in the cowl side panel (upper control in the MAX-AC position) (Figs. 17 and 18). The air is then forced through the evaporator core and when the restrictor air door (3) is closed (AC position) and the temperature blend door (5) is in the maximum COOL (TEMP control at COOL) position, the air by-passes the heater core. With the temperature blend door (5) in a modulated position, a small percentage of air passes through the heater core through a built-in opening in the lower section of the restrictor air door (3) frame. With the upper control in the HEAT-/DEFROST position, the restrictor air door (3) is open and air flow through the core is controlled in direct proportion to the setting of the temperature blend door (5) that mixes the air as it enters the plenum chamber.

With the controls set in either MAX or FRESH AC position, the AC/heat door (6) in the plenum restricts air to the heater outlets, and cold air is discharged through the four registers with approximately 15 percent bleed air to the floor.

With the controls set in the HEAT position, the AC/heat door (6) restricts air to the registers: the Heat-/Defrost door (7) is in the heat position and warm air is discharged through the heater air outlets near the tunnel with approximately 10 percent bleed air going to the defrosters.

With the control set in the HEAT position, the AC/heat door (6) restricts air to the registers; the Heat-/Defrost door (7) is in the heat position and warm air is discharged through the heater air outlets near the tunnel with approximately 10 percent bleed air going to the defrosters.

With the control set in Heat and Defrost position (Fig. 16), the Heat-/Defrost door (7) is in a mid-position and approximately 40 percent of the air goes to the defrosters and the rest goes down through the heater outlet openings.

In Defrost Only position (Fig. 16), the Heat/Defrost door (7) is in the Defrost Only position (Fig. 16), and practically all the air is forced through the two defroster outlets with a small amount of bleed air going to the heater outlets.

A four-position blower switch and resistor assembly provides three blower speeds to control the air quantity. **The blower switch must be on to engage the A/C clutch for air conditioning.**

VACUUM SYSTEM

Fig. 18 shows the various air conditioner-heater control positions and the vacuum motor applications for those positions. Fig. 19 shows the location of the vacuum and Bowden cable actuated components and the vacuum system schematic.

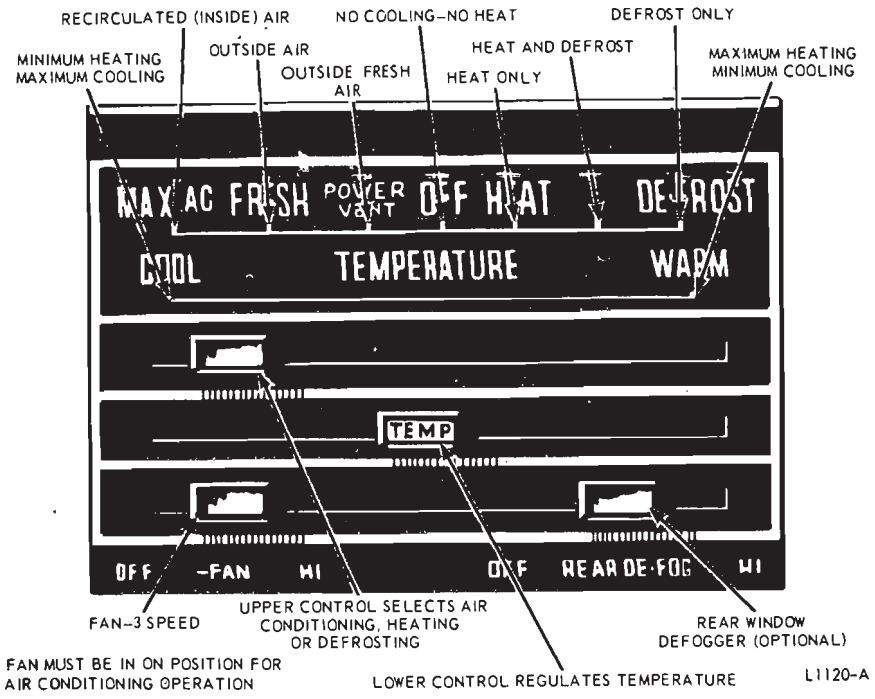


FIG. 16—Heater-A/C Controls—Thunderbird and Continental Mark III

AIR CONDITIONER COMPONENTS

RECEIVER UNIT

The air conditioning system stores the liquid Refrigerant-12 under pressure in a combination receiver and dehydrator (Fig. 20). The pressure in the receiver normally varies from about 80 to 300 psi, depending on the surrounding air temperature and compressor speed.

The dehydrator serves the purpose of removing any traces of moisture that may have accumulated in the system. Even small amounts of moisture will cause an air cooling unit to malfunction. A fusible plug is screwed into the receiver. This will release the refrigerant before the refrigerant temperature exceeds 212 degrees F.

EVAPORATOR UNIT

When the cooling system is in operation, the liquid Refrigerant-12 flows from the combination receiver and dehydrator unit through a flexible hose to the evaporator (Fig. 20) where it is allowed to evaporate at a reduced

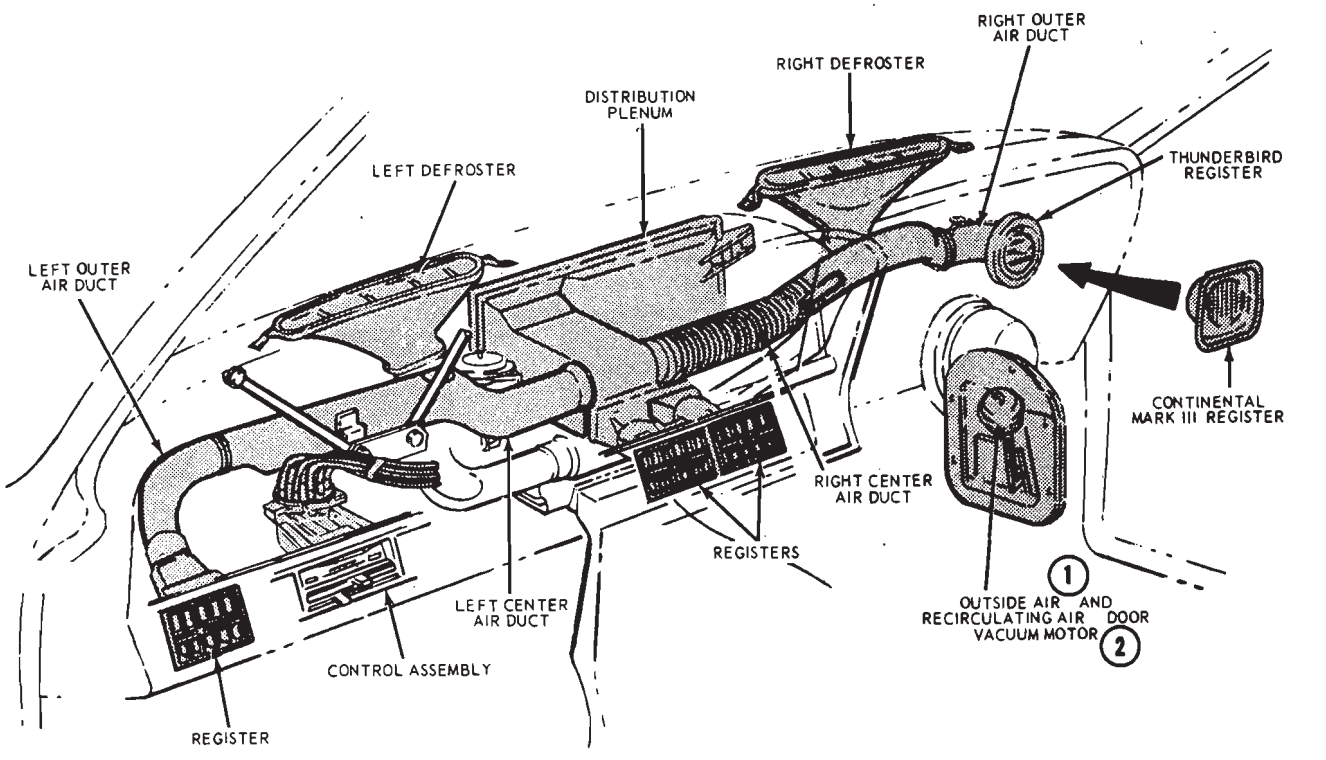
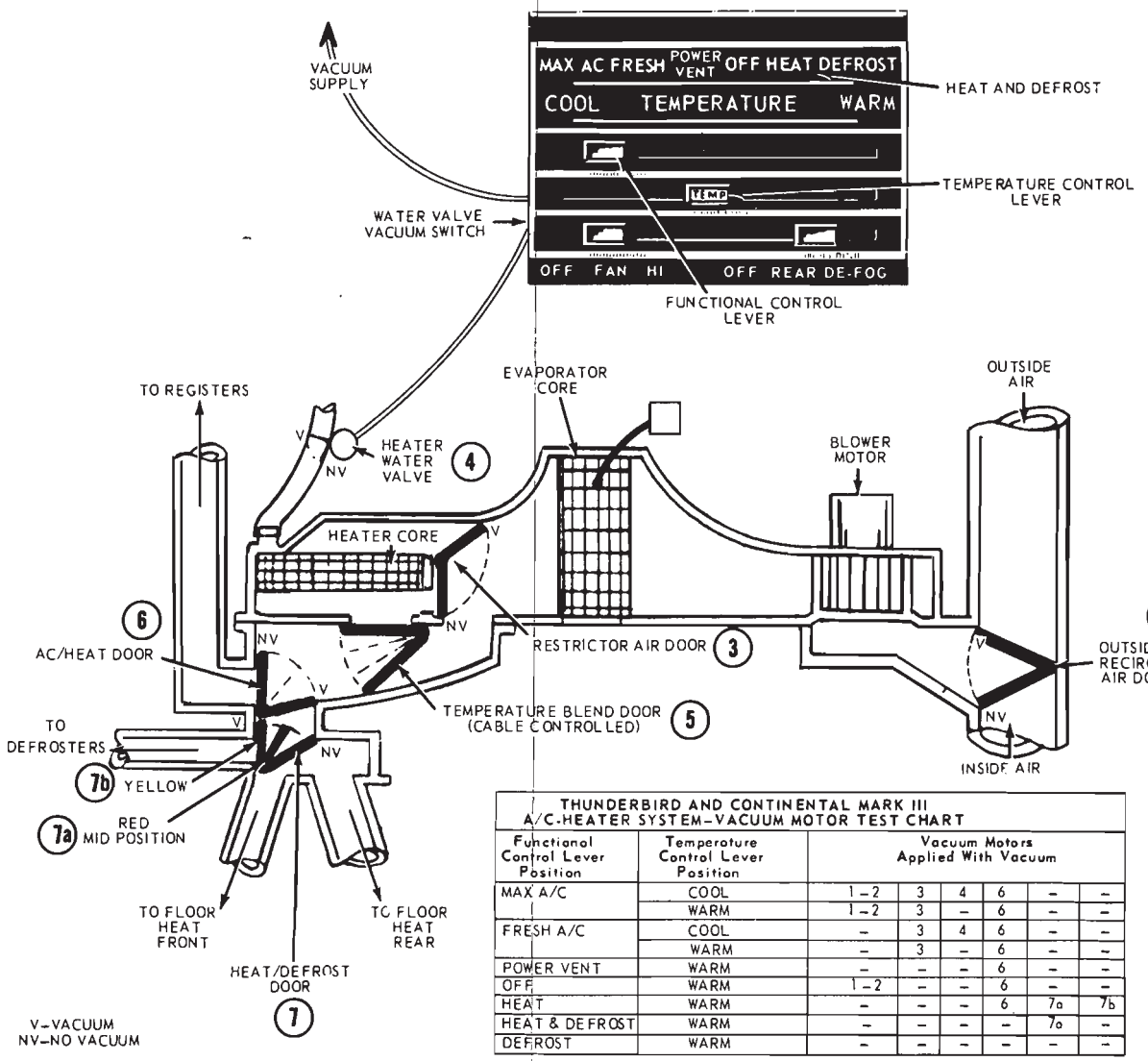


FIG. 17—A/C System Component Locations—Thunderbird and Continental Mark III



THUNDERBIRD AND CONTINENTAL MARK III
A/C-HEATER SYSTEM-VACUUM MOTOR TEST CHART

Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum					
MAX A/C	COOL	1-2	3	4	6	–	–
	WARM	1-2	3	–	6	–	–
FRESH A/C	COOL	–	3	4	6	–	–
	WARM	–	3	–	6	–	–
POWER VENT	WARM	–	–	–	6	–	–
OFF	WARM	1-2	–	–	6	–	–
HEAT	WARM	–	–	–	6	7a	7b
HEAT & DEFROST	WARM	–	–	–	–	7a	–
DEFROST	WARM	–	–	–	–	–	–

L1284-A

FIG. 18—Control Setting Vacuum Motor Application Chart—Thunderbird and Continental Mark III

pressure, to cool the evaporator. Air is blown through the evaporator fins and is thus cooled by the evaporator.

EXPANSION VALVE

The rate of refrigerant evaporation is controlled by an expansion valve (Fig. 20) which allows only enough refrigerant to flow into the evaporator to keep the evaporator operating efficiently, depending on its heat load.

The expansion valve on all models except Falcon, Fairlane and Montego consists of the valve and a temperature sensing capillary tube and bulb. The bulb is clamped to the outlet pipe of the evaporator. The expansion valve used on Falcon, Fairlane, and Montego is connected in line with both the inlet and outlet evaporator refrigerant lines. By use of internal passages leading to and from the underside of the valve diaphragm, the diaphragm senses the refrigerant temperature and pressure as it leaves the evaporator core. Thus the valve is controlled by evaporator outlet temperature.

The restricting effect of the expansion valve at the evaporator causes a low pressure on the low pressure side of the system of 12 to 50 psi, depending on the surrounding air temperature and compressor speed.

CONDENSER

The air conditioning conderser, located in front of the radiator, receives heated and compressed refrigerant gas from the compressor.

As the refrigerant gas flows down through the condenser, it is cooled by air passing between the sections of the conderser. The cooled, compressed refrigerant gas condenses to liquid refrigerant which then flows into the receiver.

COMPRESSOR UNIT

The evaporated refrigerant leaving the evaporator (now in the form of a gas) at a pressure of 12 to 50 psi is pumped by the compressor, located on the engine (Fig. 21), into the top of the condenser, located in front of the radiator.

The compressor maintains a pressure on its high pressure side of from 80 to 300 psi, depending on the surrounding air temperature and compressor speed.

As the now heated and compressed refrigerant gas flows down through

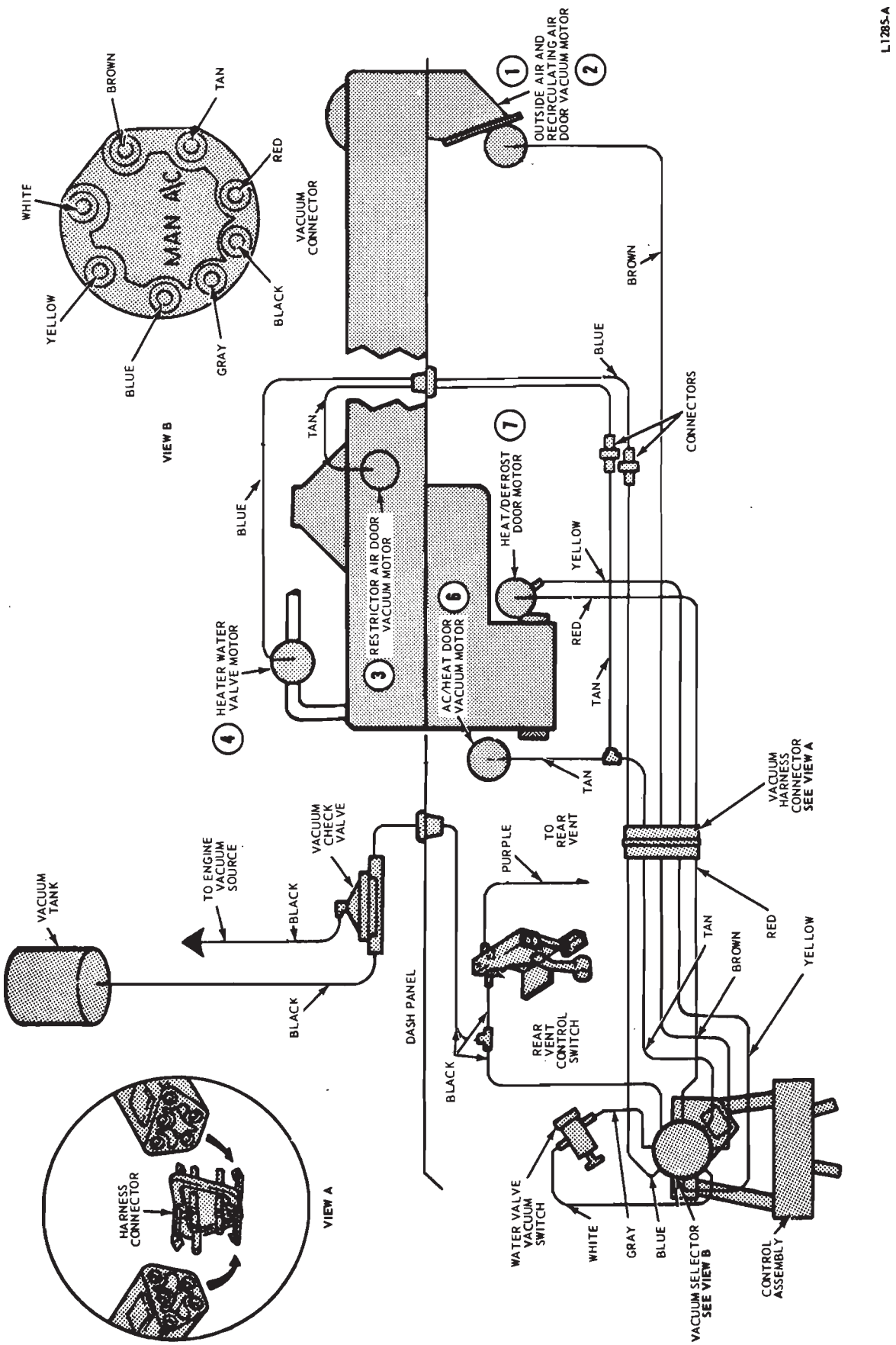


FIG. 19—A/C-Heater System Vacuum Schematic—Thunderbird and Continental Mark III

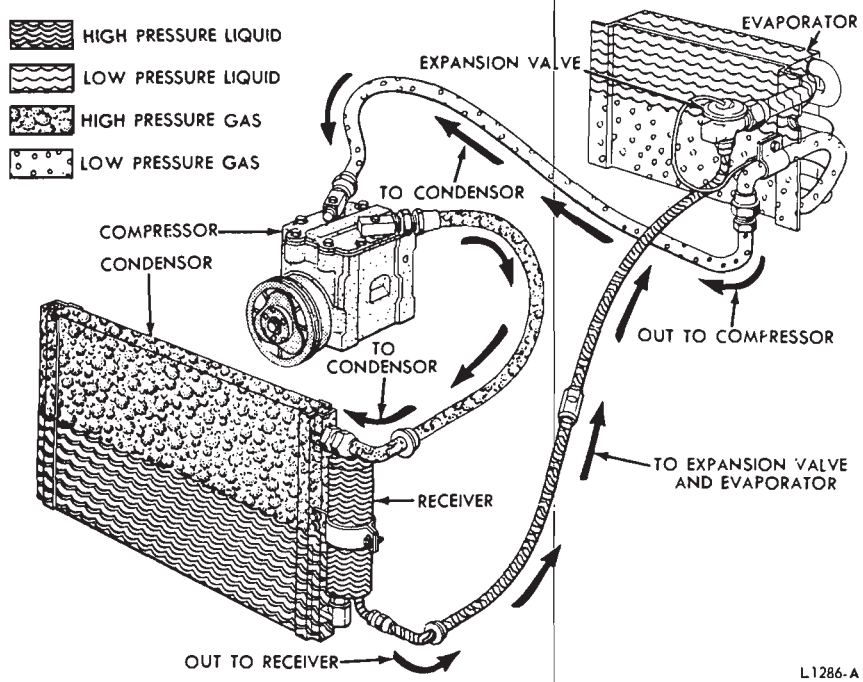


FIG. 20—Typical Air Conditioning System

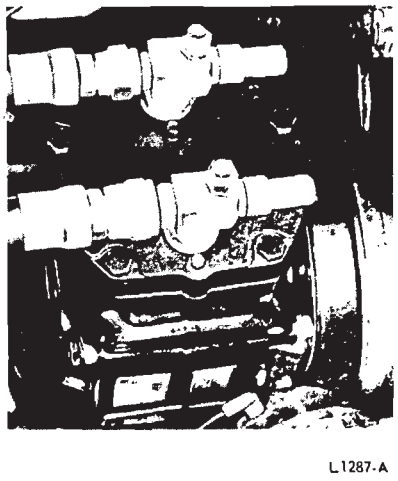


FIG. 21—Compressor Installed

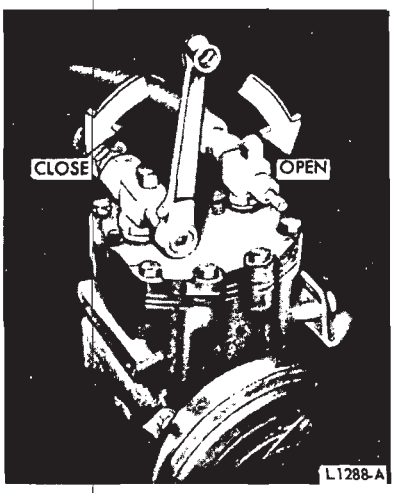


FIG. 22—Low Pressure Service Valve Gauge Port

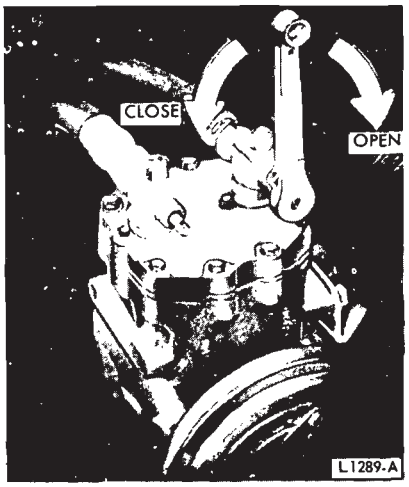


FIG. 23—High Pressure Service Valve Gauge Port

the condenser, it is cooled by air passing between the sections of the condenser. The cooled, compressed refrigerant which then flows into the receiver.

LIQUID SIGHT GLASS

A liquid sight glass is mounted in the high pressure refrigerant line between the receiver and the expansion valve (Fig. 20). The sight glass is used to check whether there is enough liquid refrigerant in the system.

MAGNETIC CLUTCH

It is necessary to control the temperature of the evaporator assembly. To accomplish this, the compressor is cut in and out of operation by an electrically operated magnetic clutch mounted on the compressor crankshaft. The magnetic clutch is controlled by the blower switch, a clutch switch which is a vacuum actuated electrical switch, and the icing switch.

THERMOSTATIC (ICING) SWITCH

The thermostatic (icing) switch is connected in series with the blower switch and the clutch switch and controls the operation of the compressor by controlling the compressor magnetic clutch. The temperature sensing tube of the switch is placed in contact with the evaporator fins. When the temperature of the evaporator becomes too cold, the switch opens the magnetic clutch electrical circuit, disconnecting the compressor from the engine. When the temperature of the evaporator rises, the thermostatic (icing) switch closes and energizes the magnetic clutch. This connects the compressor to the engine, and cooling action begins again.

When the blower switch is off or the functional control lever **is not** in an A/C position, the magnetic clutch cannot be energized for compressor operation.

When the blower switch is on and the functional control lever is in the cooling range, the magnetic clutch is controlled by the thermostatic (icing) switch which is controlled by the evaporator temperature.

SERVICE VALVES

The service valves on the compresor are used to test and service the cooling system (Figs. 22 and 23). The high pressure service valve, mounted at the outlet to the compressor, allows access to the high pressure side of the system for attaching a service hose with attached pressure gauge.

The low pressure valve, mounted at the inlet to the compressor, allows access to the low pressure side of the system for attaching a service hose with attached pressure gauge.

Both service valves may be used to shut off the rest of the system from the compressor during compressor service.

2 TESTING

SAFETY PRECAUTIONS

The refrigerant used in the air conditioner system is Refrigerant-12. Refrigerant-12 is nonexplosive, noninflammable, noncorrosive, has practically no odor, and is heavier than air. Although it is classified as a safe refrigerant, certain precautions must be observed to protect the parts involved and the person who is working on the unit.

Use only Refrigerant-12. Do not use refrigerant that was canned for pressure operated accessories (such as boat air horns). It is not pure Refrigerant-12 and will cause a malfunction.

Liquid Refrigerant-12, at normal atmospheric pressures and temperatures, evaporates so quickly that it has the tendency to freeze anything it contacts. For this reason, extreme care must be taken to prevent any liquid refrigerant from coming in contact with the skin and especially the eyes.

Refrigerant-12 is readily absorbed by most types of oil. It is therefore recommended that a bottle of sterile mineral oil and a quantity of weak boric acid solution by kept nearby when servicing the air conditioning system. Should any liquid refrigerant get into the eyes, use a few drops of mineral oil to wash them out, then wash the eyes clean with the weak boric acid solution. Seek a doctor's aid immediately even though irritation may have ceased.

Always wear safety goggles when servicing any part of the refrigerant system.

The Refrigerant-12 in the system is always under pressure. Because the system is tightly sealed, heat applied to any part would cause this pressure to build up excessively.

To avoid a dangerous explosion, never weld, use a blow torch, solder, steam clean, bake body finishes, or use any excessive amount of heat on

RELATIVE HUMIDITY PER CENT	SURROUNDING AIR TEMPERATURE °F	ENGINE SPEED RPM	MAXIMUM DESIRABLE CENTER REGISTER DISCHARGE AIR TEMP. (°F)	SUCTION PRESSURE PSI (REF)	HEAD PRESSURE PSI (+25 PSI)
20	70	1500	43	11	177
	80		48	15	208
	90		55	20	226
	100		63	23	255
30	70	1500	45	12	181
	80		51	16	214
	90		59	22	234
	100		67	26	267
40	70	1500	47	13	185
	80		54	18	220
	90		62	24	243
	100		72	29	278
50	70	1500	49	14	189
	80		57	19	226
	90		66	26	251
	100		77	32	289
60	70	1500	51	15	193
	80		60	21	233
	90		70	28	259
	100		82	35	300
70	70	1500	53	16	198
	80		63	22	238
	90		73	30	267
	100		88	37	312
80	70	1500	55	18	202
	80		65	24	244
	90		77	32	277
	100		–	–	–
90	70	1500	58	19	206
	80		68	25	250
	90		81	34	284
	100		–	–	–

FIG. 24—Air Conditioner Performance Chart—Falcon, Fairlane and Montego L1127-A

or in the immediate area of any part of the air cooling system or refrigerant supply tank, while they are closed to the atmosphere whether filled with refrigerant or not.

The liquid refrigerant evaporates so rapidly that the resulting refrigerant gas will displace the air surrounding the area where the refrigerant is released. To prevent possible suffocation in enclosed areas, always discharge the refrigerant from an air cooling system into the garage exhaust collector. Always maintain good ventilation surrounding the work area.

Although Refrigerant-12 gas, under normal conditions, is nonpoisonous, the discharge of refrigerant gas near an open flame can produce a very poisonous gas. This gas will also attack all bright metal surfaces. This poisonous gas is generated when the flame-type leak detector is used. Avoid inhaling the fumes from the leak detector. **Make certain that refrigerant-12 is both stored and installed in accordance with all state and local ordinances.**

When admitting Refrigerant-12 gas into the cooling unit, always keep the tank in an upright position. If the tank is on its side or upside down, liquid Refrigerant-12 will enter the system and damage the compressor. **In surrounding air temperatures above 90 degrees F., prolonged engine idle will result in excessively high compressor pressures.**

TESTING

Obstructed air passages, broken belts, disconnected or broken wires, loose clutch, loose or broken mounting brackets may be determined by visual inspection of the parts.

AIR CONDITIONER PERFORMANCE TEST—FALCON, FAIRLANE, AND MONTEGO

The performance level of the air conditioning system can be checked after performing diagnostic checks and repairs to determine if the system is operating to specifications. The performance level chart (Fig. 24) indicates the maximum desirable discharge air temperature in relation to the ambient (surrounding) air temperature and relative humidity.

The performance level check must be performed under the following test conditions.

1. Connect the manifold gauge set to the compressor service valves. (Refer to Checking System Pressures in this section).
2. Install a motor driven psychrometer (humidity indicator) at the fresh air intake.
3. Install a dry bulb thermometer at the center air outlet register (Weston Model 2261 or equivalent).
4. Operate the engine at 1500 rpm with the transmission in Part (automatic transmission) or neutral (manual transmission).
5. Set the A/C controls for fresh air operation and the blower on high speed.
6. Close the hood and open the front doors of the vehicle.
7. Perform the test with no sun load (in shade) and no wind.
8. Allow the discharge air temperature to stabilize. Record the relative humidity, ambient (surrounding) air temperature, discharge air temperature, and suction and head pressure. Compare the readings to those shown in Fig. 24. Temperatures above those shown in Fig. 24 indicate additional system diagnosis is required.

COMPRESSOR TEST

Attach the manifold gauge set (Fig. 25). It will not be necessary to attach the Refrigerant-12 tank or the vacuum. Set both manifold gauge valves at the maximum clockwise, or closed, position. Close the suction service valve (maximum clockwise position).

Operate the engine at 1500 rpm. Set the air conditioner controls for maximum cooling to engage the compressor clutch. The suction gauge should read 20 inches of vacuum within 30 seconds. Disengage the clutch by setting the air conditioner controls to OFF. The suction gauge should remain below zero psi for at least one minute.

If the compressor does not satisfy these two conditions after at least 3 cycles of clutch engagement, the compressor has either a blown head gasket or leaking valves. Remove the head and inspect the valve plate and gaskets for damage. Replace parts if necessary. Replace a compressor if the cylinder walls are scored or pieces of metal are imbedded in the pistons.

CHECKING FOR LEAKS

Attach the manifold gauge set (Fig. 25). Leave both manifold gauge valves at the maximum clockwise position. Set both service valves at the center position. Both gauges should not show approximately 60 to 80 pounds pressure at 75 degrees F. If very little or no pressure is indicated, leave the vacuum pump valve closed, open the Refrigerant-12 tank valve, and set the low pressure manifold gauge valve to the counterclockwise position. This opens the system to tank pressure. Check all connections, and the compressor shaft seal for leaks, using a

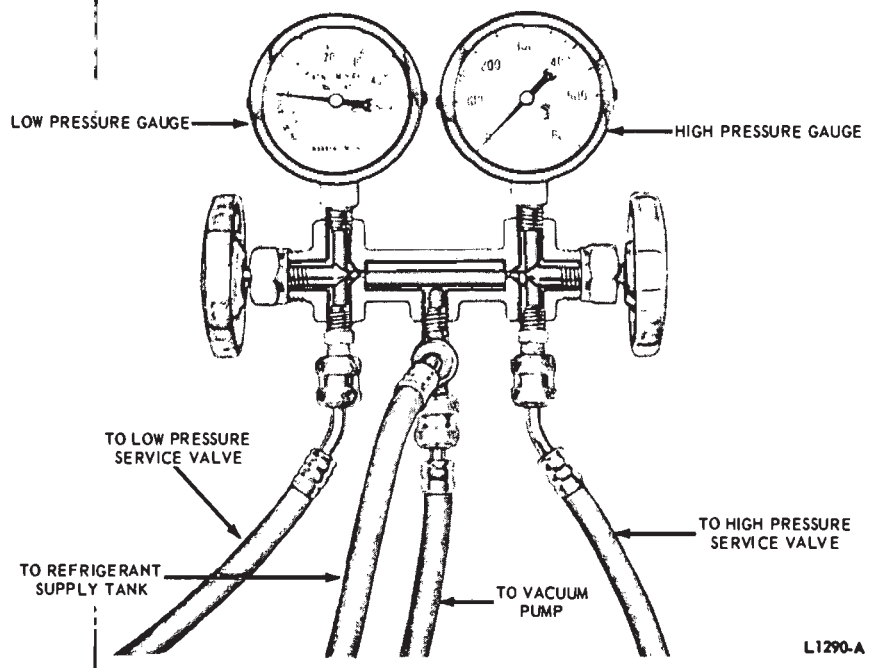


FIG. 25—Manifold Gauge Set

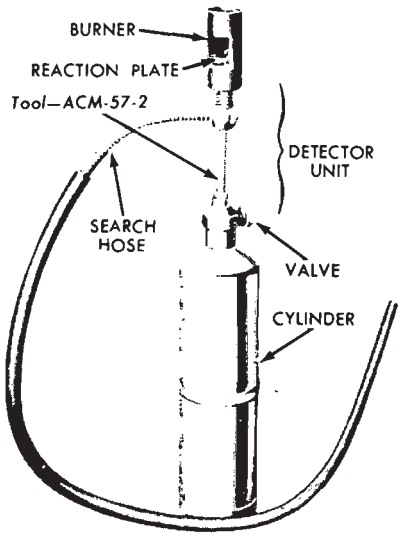


FIG. 26—Torch Type Leak Detector

flame-type leak detector (Fig. 26). Follow the directions with the leak detector. The smaller the flame the more sensitive it is to leaks. Therefore, to insure accurate leak indication keep the flame as small as possible. The copper element must be red hot. If it is burned away, replace the element. Hold the open end of the hose at each suspected leak point for two or three seconds. The flame will normally be almost colorless. The slightest leak will be indicated by a bright green blue color to the flame. Be sure to check the manifold gauge set and hoses for leaks as well as the rest of the system.

If the surrounding air is contaminated with refrigerant gas, the leak detector will indicate this gas all the time. Good ventilation is necessary to prevent this situation. A fan, even in a well ventilated area, is very helpful in removing small traces of refrigerant vapor.

USE OF SIGHT GLASS

Clean the sight glass before checking for a proper charge of refrigerant. Then, observe the sight glass for bubbles with the engine running at 1500 rpm and the A/C controls set at maximum cooling. Bubbles in the sight glass indicate an undercharge of refrigerant. If an undercharge of refrigerant is found, check the system for leaks. Repair any leaks, evacuate the system, and charge the system with the proper amount of Refrigerant-12.

No bubbles in the sight glass indicate either a full charge of refrigerant or a complete loss of refrigerant. While observing the sight glass, cycle the magnetic clutch off and on, with the engine running at 1500 rpm. During the time the clutch is off, bubbles will appear if refrigerant is in the system and will disappear when the clutch is on. If no bubbles appear during the on and off cycle of the magnetic clutch, there is no refrigerant in the system. If there is no refrigerant in the system, it will be necessary to leak test, repair as required, and charge the system. **Under conditions of extremely high temperatures, occasional foam or bubbles may appear in the sight glass.**

CHECKING SYSTEM PRESSURES

The pressures developed on the high pressure and lower pressure side of the compressor indicate whether or not the system is operating properly.

Attach the manifold gauge set (Fig. 25). It will not be necessary to attach the Refrigerant-12 tank unless refrigerant is to be added to the system. Set both manifold gauge valves at the maximum clockwise, or closed, position. Set both service valves at the center position.

Check the system pressures with the engine running at 1500 rpm, all controls set for maximum cooling, and the front of the car at least 5 feet from any wall.

The actual pressures indicated on the gauges will depend on the temperature of the surrounding air and the humidity. Higher air temperatures along with high humidity, will give higher system pressures. The lowest figures given are for an ambient (surrounding air) temperature of 75 degrees F., 50 percent relative humidity.

The low pressure gauge should indicate a pressure of from 12-50 psi. The high pressure gauge should indicate a pressure of 120-300 psi.

At idle speed and a surrounding air temperature of 100 degrees - 110 degrees F., the high pressure may go as high as 300 pounds or more. If it becomes necessary to operate the air conditioner under these conditions, keep the high pressure down with a fan directed at the condenser and radiator.

INTERPRETING ABNORMAL SYSTEM PRESSURES

Low Pressure Below Normal, High Pressure Normal

These pressures indicate a low charge or a restriction between the receiver and the expansion valve or between the expansion valve and the low pressure service valve. If the low pressure is actually a vacuum, the expansion valve is probably closed tightly. Check the expansion valve and replace it if required.

Check the system between the receiver outlet and the expansion valve for restrictions, by feeling all of the connections and components. Any portion that is cold to the touch or that frosts up, with the pressures as indicated here, is restricting the refrigerant flow.

Low Pressure Above Normal, High Pressure Normal

Check the heater water valve (4) to be sure that it is closed. Operate the system on MAX A/C and be sure that the outside air door (1) is closed.

High Pressure Below Normal, Low Pressure Above Normal

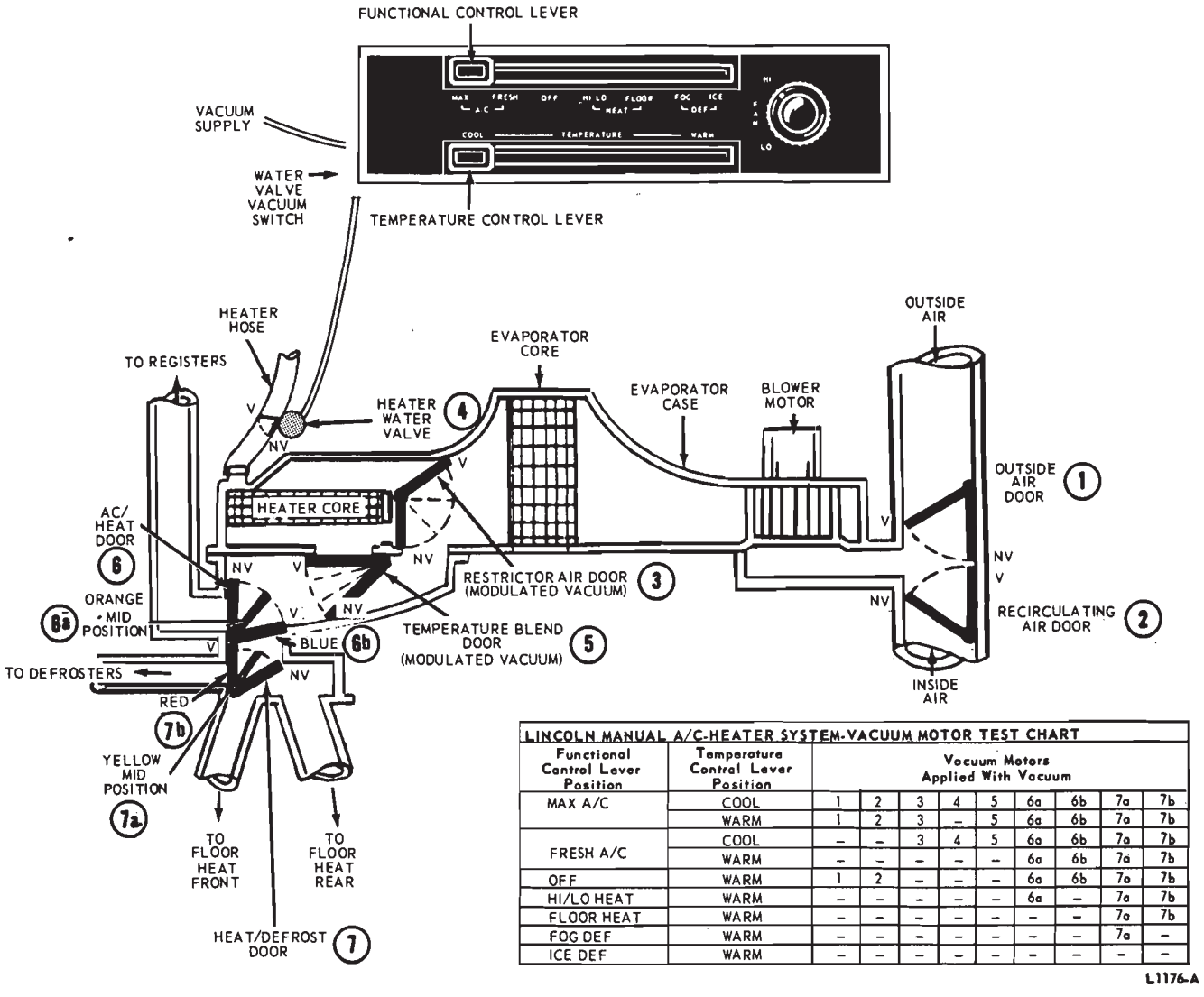
If the two pressures are equal or within 30 pounds of each other, the compressor may not be operating properly. Perform the compressor test. Repair or replace the compressor as needed.

High Pressure Above Normal

High compressor head pressures are caused by an overcharge of refrigerant, condenser air passages clogged, a restriction between the condenser inlet and the receiver, or high surrounding air temperatures. Check the condenser fins for dirt or insects and clean as required. If the high pressure is still excessive, discharge the system through the discharge service valve. Check for a restricted condenser or a restriction between the condenser and the receiver. Evacuate the system and charge with the specified amount of Refrigerant 12.

THERMOSTATIC (ICING) SWITCH TEST

Fill a container with crushed ice, salt and water. Put enough salt in the water so that the temperature of the solution is 25 degrees F. or lower.



LINCOLN MANUAL A/C-HEATER SYSTEM-VACUUM MOTOR TEST CHART

Functional Control Lever Position	Temperature Control Lever Position	Vacuum Motors Applied With Vacuum								
		1	2	3	4	5	6a	6b	7a	7b
MAX A/C	COOL	1	2	3	–	5	6a	6b	7a	7b
	WARM	1	2	3	–	5	6a	6b	7a	7b
FRESH A/C	COOL	–	–	3	4	5	6a	6b	7a	7b
	WARM	–	–	–	–	–	6a	6b	7a	7b
OFF	WARM	1	2	–	–	–	6a	6b	7a	7b
HI/LO HEAT	WARM	–	–	–	–	–	6a	–	7a	7b
FLOOR HEAT	WARM	–	–	–	–	–	–	–	7a	7b
FOG DEF	WARM	–	–	–	–	–	–	–	7a	–
ICE DEF	WARM	–	–	–	–	–	–	–	–	–

L1176-A

FIG. 27—Manual A/C-Heater Blend Air System Schematic—Lincoln Continental

Use a self-powered test light or ohmmeter connected to the switch terminals to check whether or not the switch is closed.

Place the sensing tube in the ice, salt and water solution. The thermostatic (icing) switch contact points should open and remain open while the tube is in the solution.

Remove the sensing tube from the solution. As the tube warms up, the switch contacts should close. An ohmmeter check of the contacts should show a resistance of less than an ohm. If a resistance of one ohm or more occurs, replace the switch. **Make certain that no salt water gets into the control.** If the control fails to function as outlined, it must be replaced.

RECEIVER—DRYER TEST

Operate the air conditioner for about five minutes; then, slowly move your hand across the length of the unit from one end to the other. There should be no noticeable difference in temperature. If cold spots are felt, it indicates that the unit is restricting the refrigerant flow, and the receiver-dryer must be replaced.

MAGNETIC CLUTCH TEST

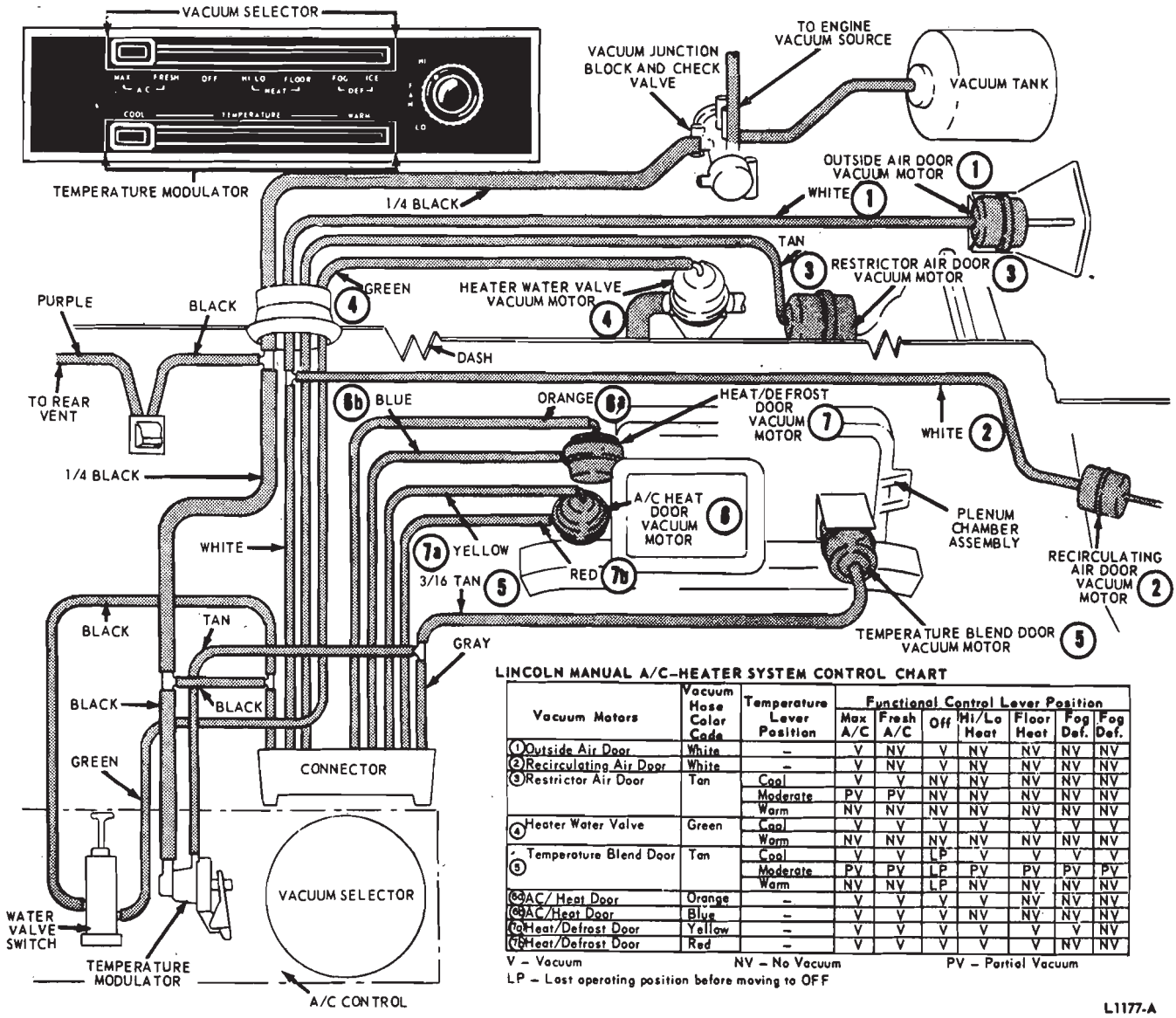
Disconnect the magnetic clutch wire at the bullet connector, and connect it to the negative lead of an ammeter. Connect the positive lead of the ammeter to the battery positive terminal. The magnetic clutch should pull in with a distinct click and the current reading on the ammeter should be to specification.

BLOWER MOTOR TEST—EXCEPT LINCOLN CONTINENTAL

Disconnect the blower motor wire at the bullet connector, and connect it to the negative lead of an ammeter. Connect the positive lead of the ammeter to the battery positive terminal. The motor should operate and the reading on the ammeter should be to specification.

FUNCTIONAL AND TEMPERATURE LEVER TESTS— LINCOLN CONTINENTAL

The test chart in Fig. 27 will deter-



LINCOLN MANUAL A/C-HEATER SYSTEM CONTROL CHART

Vacuum Motors	Vacuum Hose Color Code	Temperature Lever Position	Functional Control Lever Position						
			Max A/C	Fresh A/C	Off	Hi/Lo Heat	Floor Heat	Fog Def.	Fog Def.
(1) Outside Air Door	White	–	V	NV	V	NV	NV	NV	NV
(2) Recirculating Air Door	White	–	V	NV	V	NV	NV	NV	NV
(3) Restrictor Air Door	Tan	Cool	V	V	NV	NV	NV	NV	NV
		Moderate	PV	PV	NV	NV	NV	NV	NV
		Warm	NV	NV	NV	NV	NV	NV	NV
(4) Heater Water Valve	Green	Cool	V	V	V	V	V	V	V
		Warm	NV	NV	NV	NV	NV	NV	NV
(5) Temperature Blend Door	Tan	Cool	V	V	LP	V	V	V	V
		Moderate	PV	PV	LP	PV	PV	PV	PV
		Warm	NV	NV	LP	NV	NV	NV	NV
(6a) A/C Heat Door	Orange	–	V	V	V	V	NV	NV	NV
(6b) A/C Heat Door	Blue	–	V	V	V	NV	NV	NV	NV
(7a) Heat/Defrost Door	Yellow	–	V	V	V	V	V	V	NV
(7b) Heat/Defrost Door	Red	–	V	V	V	V	V	NV	NV

V – Vacuum NV – No Vacuum PV – Partial Vacuum
LP – Last operating position before moving to OFF

L1177-A

FIG. 28—Manual A/C-Heater Control System Diagram—Lincoln Continental

mine which vacuum motor should be functioning with applied vacuum during the various functional lever and temperature control lever positions at the manual AC/Heater system control assembly on the instrument panel. Check for proper operation by following the charts (Figs. 27 and 28) along with the descriptions that follow:

Each vacuum control motor, and the door or valve it operates, has been assigned a code number and name that relates directly to its application in the system as follows:

(1) Outside Air Door
(2) Recirculating Air Door
(3) Restrictor Air Door
(4) Heater Water Valve
(5) Temperature Blend Door
(6) AC/Heat Door
(7) Heat/Defrost Door

The Outside Air Door (1) vacuum motor arm will travel its full length, closing the Outside Air Door (1), when vacuum is applied.

The Recirculating Air Door (2) vacuum motor arm will travel its full length, opening the Recirculating Air Door (2) when vacuum is applied.

A modulated vacuum from the temperature regulator valve (Figs. 27 and 28) is supplied to the Restrictor Air Door (3) and Temperature Blend Door (5). The amount of vacuum increases as the temperature control lever is moved toward the **COOL** position. The Restrictor Air Door (3) will block the air going to the heater core and the Temperature Blend Door (5) will block the air coming from the heater core when maximum vacuum is attained.

When vacuum is applied to the Heater Water Valve (4) vacuum motor, the valve will close cutting off the water flow to the heater core.

Where two vacuum lines are used to control one vacuum motor (AC/Heat (6) and Heat/Defrost (7) Doors) the top vacuum line (a) will move the arm of the motor to the mid or half-way position. Vacuum must also be applied to the side vacuum line (b) to move the arm to the full vacuum position.

CONTROL LEVER OPERATION

Temperature Control Lever

With the temperature control lever

(lower) in **COOL** position, the Restrictor Air Door (3) and Temperature Blend Door (5) restrict the passage of air through the heater core (vacuum), the Heater Water Valve (4) is closed (vacuum) and cool air is discharged through the registers, floor outlets or defrosters. As the lever is moved toward **WARM** the water valve vacuum switch is released and the Heater Water Valve (4) is opened (no vacuum), the Restrictor Air Door (3) and Temperature Blend Door (5) vacuum motors are modulated (partial vacuum) allowing air through the heater core to be mixed with cool air and discharged through the plenum outlets. In the **WARM** position (no vacuum), all air passes through the heater core to provide maximum discharge air temperature. Refer to Figs. 27 and 28.

Functional Control Lever

In **MAX A/C-COOL** control positions, air is drawn into the system by the blower from inside the vehicle through the Recirculating Air Door (2) (Vacuum) in the right cowl side panel and the Outside Air Door (1) in the cowl air intake is closed (vacuum). The air is then forced through the evaporator core, the Restrictor Air Door (3) closes off air through the heater core (vacuum), the Temperature Blend Door (5) is in the maximum cool position (Full vacuum), and all air by-passes the heater core, and the water valve is off (vacuum). The AC/Heat Door (6) is in the fully closed position (6a and 6b vacuum) and cooled air is discharged through the four registers. Refer to Fig. 27.

In **FRESH A/C-COOL** control positions outside air is drawn into the system through the Outside Air Door (1) (no vacuum), the Recirculating Air Door (2) is closed (no vacuum) and all the other doors are in the same position as in **MAX A/C-COOL.**

In the **OFF** position the blower is off, the Outside Air Door (1) is closed (vacuum) and no air is drawn into the system.

In **HI/LO HEAT** control position the Outside Air Door (1) is open (no vacuum), the Recirculating Air Door (2) is closed (no vacuum) and the heater core Restrictor Air Door (3) is in the heat position (open—no vacuum). Warmed air through the heater core is then mixed with cool air that by-passes the core in proportion to the control setting of the Temperature Blend Door (5). With the AC/Heat Door (6) in mid-position (6a vacuum) and the Heat/Defrost Door (7) is fully closed (7a and 7b vacuum) air is discharged equally through the registers and floor outlets.

In **FLOOR HEAT-WARM** control positions the Outside Air Door (1), Recirculating Air Door (2) and Restrictor Door (3) are in the same position as in **HI/LO HEAT** position with no vacuum. The Temperature Blend Door (5) is in the maximum heat position (no vacuum), the AC/Heat Door (6) is in the heat position (no vacuum), the Heat/Defrost Door (7) is fully closed (7a and 7b vacuum), and heated air is discharged through the floor outlets and through the rear seat heat ducts.

In **DEFOG** position the Outside Air Door (1), Recirculating Air Door (2), Restrictor Air Door (3) and AC/Heat Door (6) are in the same position as in **HI/LO HEAT** position with no vacuum. The Heat/Defrost Door (7) is in a mid-position (7a vacuum) and warmed air is discharged both through the defrosters and floor outlets with air temperature in proportion to the control setting for the Temperature Blend Door (5).

In **DEICE-WARM** position all doors remain in the same position as in **DEFOG** position except the Temperature Blend Door (5) is in maximum heat position (no vacuum) and the Heat/Defrost Door (7) is in defrost position (no vacuum) and all of the heated air is discharged through the defrosters to the windshield, with only a small bleed to the floor.

BLOWER MOTOR CONTROLS

Refer to Standard Heater System, Group 34-03.

A/C THERMOSTAT (AMBIENT) SWITCH

The A/C thermostat (ambient) switch, located on the left center grille support is a normally closed snap action electrical switch that controls the compressor clutch operation. It receives electrical current from the A/C clutch (Micro) switch located in the Manual A/C-Heater Control Assembly (Fig. 13) when the functional control lever (top) is in any position except **OFF.** The ambient switch cuts in, allowing the clutch to operate, at approximately 55 degrees F. and cuts out, disengaging the clutch, at approximately 35 degrees F.

3 ADJUSTMENTS AND SERVICE OPERATIONS

DISCHARGING THE SYSTEM

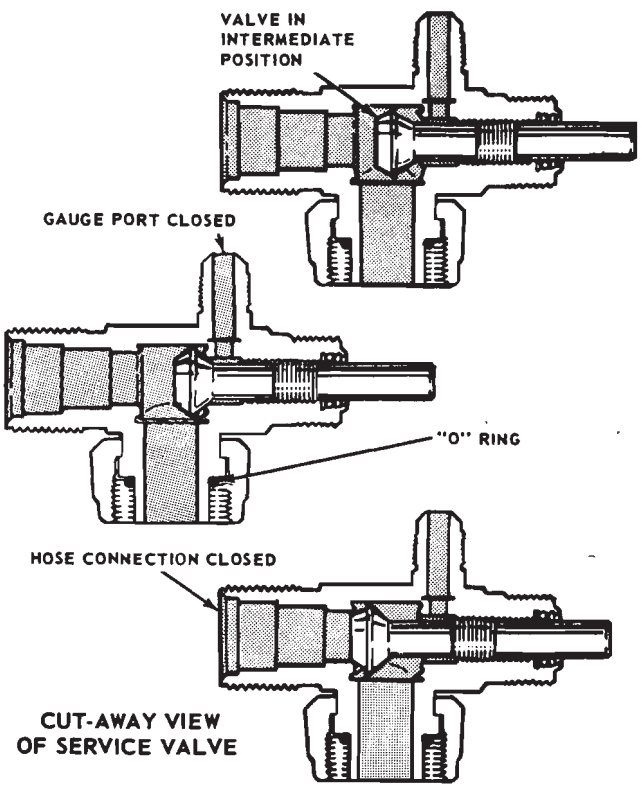
Discharge the refrigerant from the system before replacing any part of the system, except the compressor.

To discharge the system, connect the manifold gauge set to the system. Do not connect the manifold center connection hoses to the Refrigerant-12 tank, or vacuum pump. Place the open end of these hoses in a garage exhaust outlet. Set both manifold gauge valves at the maximum counterclockwise or open position. Open both service valves a slight amount (Figs. 22 and 23) and allow the refrigerant to discharge slowly from the system.

Do not allow the refrigerant to rush out, as the oil in the compressor will be forced out along with it.

EVACUATING THE SYSTEM

Attach the manifold gauge set, a tank of Refrigerant-12 and a vacuum pump to the system. Make certain that the Refrigerant-12 tank valve is tightly closed. Set both service valves to the mid-position. Open both manifold valves. Release any pressure in the system. Open the vacuum pump valve and run the pump until the low pressure gauge reads at least 25 inches, and as close to 30 inches of vacuum as possible. Continue vacuum pump operation for 20 to 30 minutes to boil any moisture out of the system. Close the pump valve. Turn off the pump.



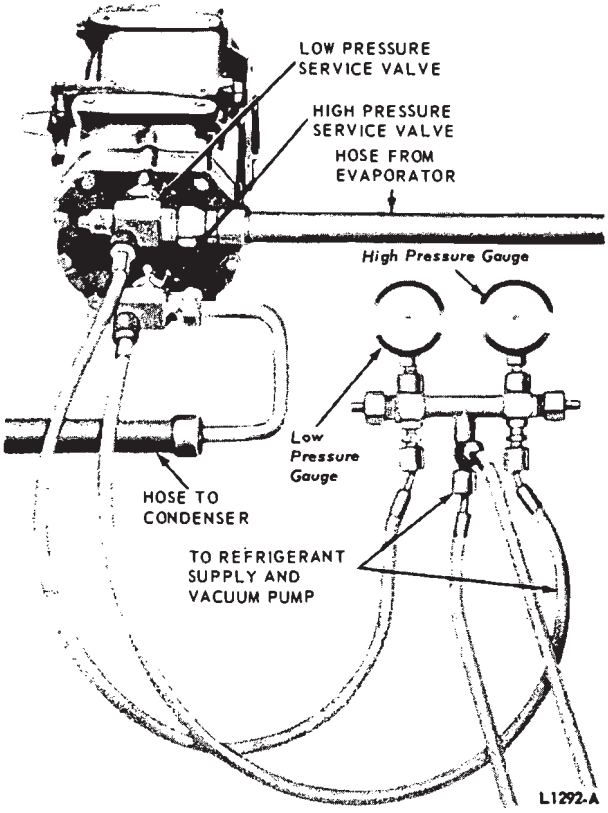


FIG. 29—Charging the Air Conditioning System

MAKING A COMPLETE CHARGE

Check for leaks first (Section 2 in this part), release the pressure, then evacuate the system. Leave both service valves at the mid-position (Fig. 29) and the vacuum pump valve closed. Leave the low pressure manifold gauge valve at the maximum counterclockwise or open position. Set the high pressure manifold gauge valve at the maximum clockwise or closed position. Set all controls to the maximum cold position.

Open the Refrigerant-12 tank valve. Run the engine at 1500 rpm. Charge the system until the weight of refrigerant is to specification.

It may be necessary to place the Refrigerant-12 tank in a container of hot water at about 150 degrees F. to force the gas from the tank during charging.

Never heat the refrigerant-12 tank with a torch. A dangerous explosion may result.

During the charging, the high pressure may build up to an excessive value. This can be caused by an overcharge of refrigerant, or an overheated engine, in combination with high surrounding temperatures. Never allow the high pressure to exceed 240 pounds while charging. Stop the engine, determine the cause, and correct it.

After the proper charge has been made, close the Refrigerant-12 tank valve, and check the system pressures for proper operation. Set both service valves at the maximum counterclockwise position. Remove the gauge set, and cap the service valve gauge ports and valve stems.

CHARGING FROM SMALL CONTAINERS

Refrigerant-12 is available in 15 oz. cans. A scale is not necessary if these small containers are used instead of a tank.

Attach the hose that would normally go to the large tank to the special valve that is provided for the small cans. Close the valve (maximum clockwise position) and follow the procedure for leak testing, evacuating and charging the system as previously given.

For charging, attach a 15 oz. can of Refrigerant-12 to the special valve, and open the valve. Keep the can in an upright position. When the can is empty (no frost showing), close the valve, remove the empty can, attach a new one, and open the valve again.

Allow only the specified amount of refrigerant to be pumped into the system. The front line on the can will indicate what portion of the refrigerant in the can has entered the system. Then close the valve at the can. The system will then have been charged with the correct weight in pounds of refrigerant.

Check the system pressures, set both service valves at the maximum counterclockwise position. Remove the gauge set, and cap the service valve gauge ports and valve stems.

COMPRESSOR OIL LEVEL CHECK

Under normal conditions, when the air conditioning system is operating satisfactorily, the compressor oil level need not be checked. There is no place for the oil to go except inside the sealed system. When the car is first started, some of the oil will be pumped into the rest of the system. After several minutes of operation, most of the oil is returned to the compressor crankcase.

Check the compressor oil level only if any portion of the refrigerant sys-

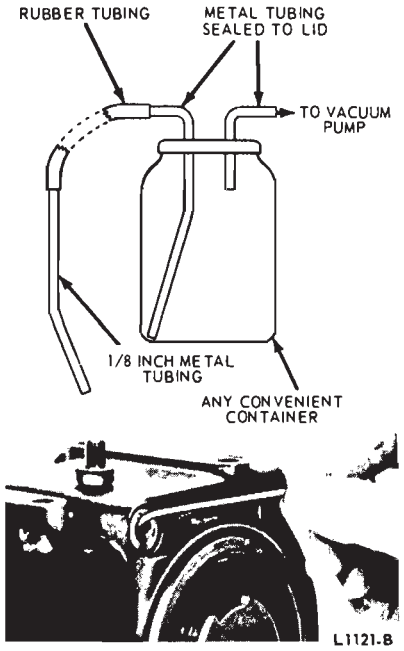


FIG. 30—Compressor Oil Level Check and Oil Trap

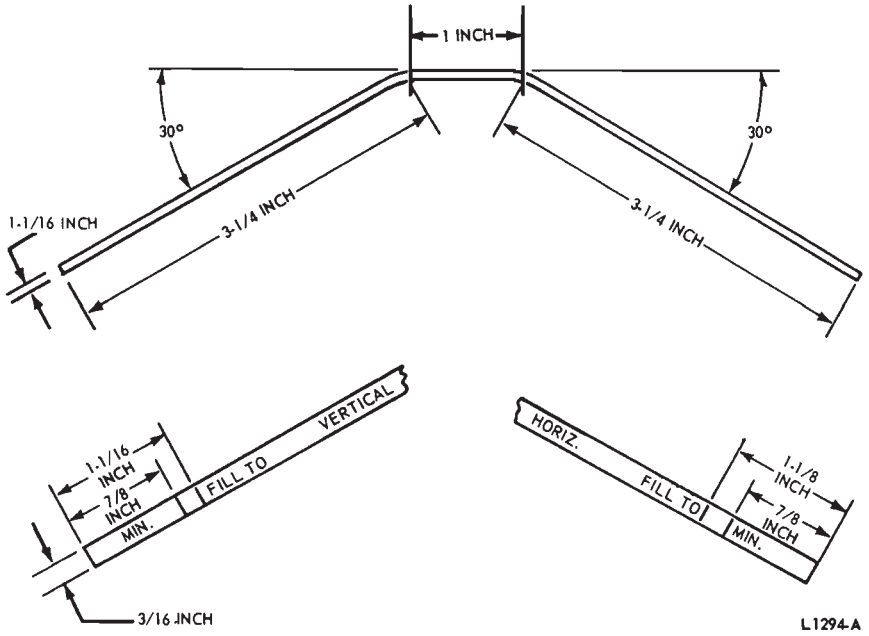


FIG. 32—Tecumseh Compressor Oil Level Dipstick

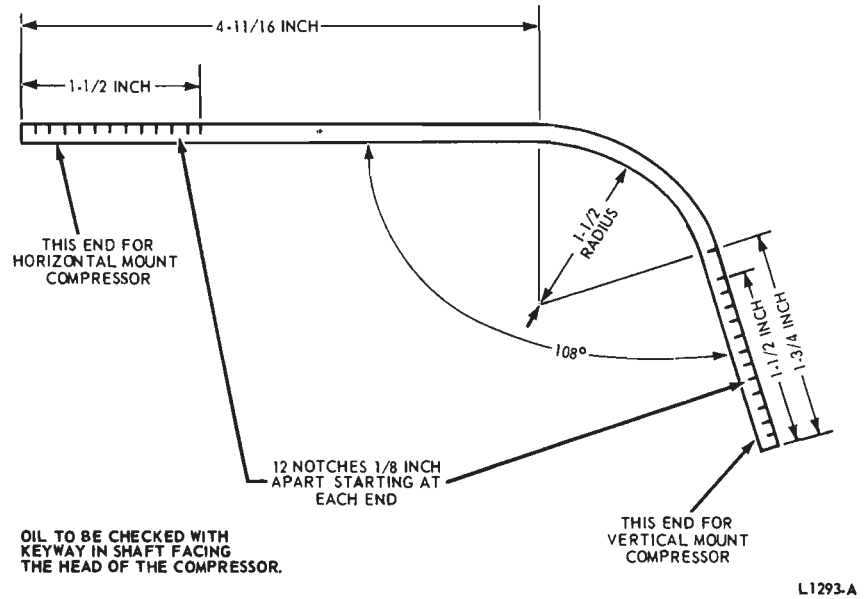


FIG. 31—York Compressor Oil Level Dipstick

tem is being replaced, or if there was a leak in the system and the refrigerant is being replaced.

Check the oil after the system has been charged and has been operating at idle speed for 10 minutes in 60 degrees F. surrounding air temperature or above. Turn off the engine, and isolate the compressor (see the following procedure). **Do not front seat the suction service valve, and pump the refrigerant from the compressor, as a portion of the oil will also be pumped out of the compressor.** Remove the oil filler plug from the compressor; insert a flattened 1/8-inch diameter rod (Fig. 30) in the oil filler hole until it bottoms. **The dipstick must be wiped completely clean before insertion.** The rod should show at least the minimum amount of oil as shown in Figs. 31 and 32. It may be necessary to rotate the compressor crankshaft slightly by hand so that the dipstick will clear the crankshaft. If additional oil is needed in the compressor, add Sun Oil Suniso 5G, or Texaco Capella E refrigerant compressor oil or Suniso 3G or Capella C. **Do not use engine oil, transmission or other non-refrigerant oils as they contain ingrediants which are not compatible with the Refrigerant 12. Do not use any type of additive.**

If more than the maximum amount of oil is indicated, as might happen if a new compressor is installed and oil already in the system is pumped back to the compressor, draw out all of the oil using a trap similar to that shown in Fig. 30, or remove the compressor from the vehicle and pour the oil out of the crankcase. Add approximately 4 ounces of oil to the crankcase and operate the system, as before, for an additional 10 minutes. Recheck the oil level.

Replace the oil filler plug, evacuate and connect the compressor back int the system. Operate the system for an additional five minutes, then recheck the oil level as above. Two checks are necessary as one check will not return all the oil to the compressor if there is too much oil in the system.

Replace the oil filler plug, then evacuate and connect the compressor back into the system. **Be sure to**

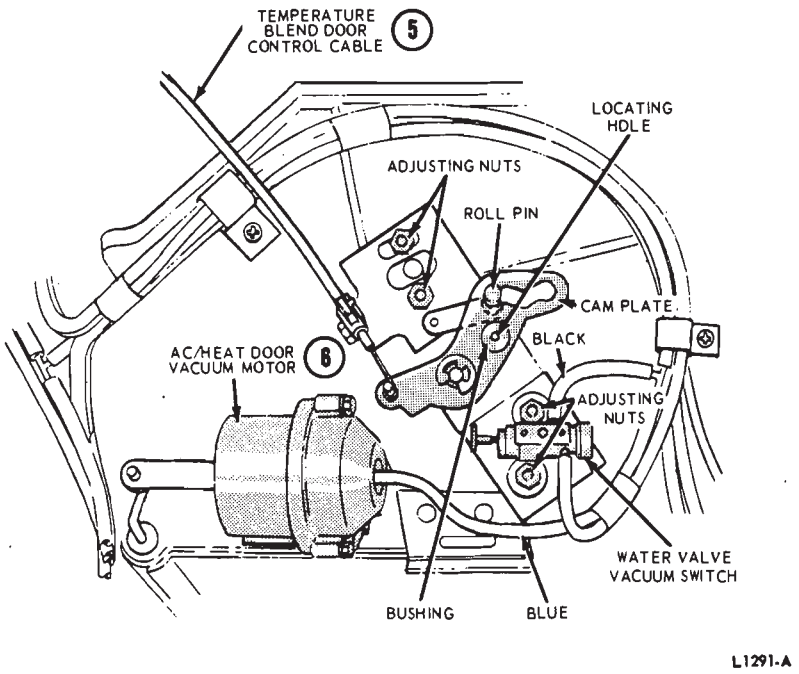


FIG. 33—Temperature Blend Door (5) Control Cable Bracket Assembly—Falcon, Fairlane, and Montego

check the compressor filler opening for leaks.

When checking the oil level on a compressor which has the oil check hole on the side of the crankcase and the compressor is mounted horizontally, the dipstick must be angled so that the stick bottoms on the side of the crankcase and not the boss for the oil check hole on the downward side of the compressor (Fig. 30).

ISOLATING THE COMPRESSOR

This procedure is used when checking the compressor oil level and when it is desired to replace the compressor without losing the refrigerant charge.

To isolate the compressor from the system, turn both the high and the low pressure service valves to the extreme clockwise (front-seat) position. Loosen the cap on the high pressure service valve gauge port, and allow the gas to escape until the compressor is relieved of refrigerant pressure.

Loosen the cap a small amount only, and do not remove it until the pressure is completely relieved.

To connect the compressor back into the system, evacuate the compressor with a vacuum pump at both service valve gauge ports, close the vacuum pump valve, turn both service valves to the maximum counterclockwise (back-seat) position, and cap the high pressure service valve gauge port and service valve stems.

VACUUM MOTOR ADJUSTMENT

The vacuum motors are adjustable for proper air door operation.

The single acting actuators are adjusted so that the vacuum motor return springs are preloaded for about 1/8 inch travel of the connecting link with no vacuum applied. Perform the adjustment as follows:

1. Loosen the vacuum motor attaching screws or nuts.
2. Move the vacuum motor until the preload indicator is flush with the motor body. (The air door must be in its normal position with no vacuum applied).
3. Tighten the bracket attaching screws or nuts and check the operation of the door.

TEMPERATURE BLEND DOOR (5) CONTROL CABLE ADJUSTMENT—FALCON, FAIRLANE AND MONTEGO

CAM PLATE AND MOUNTING BRACKET

1. Remove the heater air-conditioner from the vehicle (Section 6).
2. Remove the control cable from the mounting bracket.
3. Loosen the two mounting bracket adjusting nuts (Fig. 33).
4. Insert a 1/8-inch pin in the locating hole in the cam plate (Fig. 33) and down into the hole in the mounting plate bushing.
5. Rotate the cam plate and mounting bracket clockwise with the 1/8-inch pin in place, until the temperature blend door (5) touches the evaporator wall firmly. Then, tighten the two mounting bracket adjusting nuts.

WATER VALVE VACUUM SWITCH ADJUSTMENT

1. Loosen the water valve vacuum switch adjusting nuts (Fig. 33).
2. Rotate the cam plate to the maximum counterclockwise position.
3. Position the switch so the plunger is depressed 1/16 to 3/32-inch by the cam plate. Then, tighten the adjusting nuts.
4. Install the heater air-conditioner in the vehicle.
5. Adjust the temperature blend door (5) cable turnbuckle with the temperature control in the minimum heat position. Allow approximately 1/8 inch bounce back on the lever from the end of the slot.

ADJUSTMENTS—LINCOLN CONTINENTAL

VACUUM MOTORS

The Outside Air Door (1) and Recirculating Air Door (2) motors are two-position motors, the AC/Heat Door (6) and Heat/Defrost Door (7) are both three-position motors and the Temperature Blend Door (5) and Restrictor Air Door (3) motors are modulating motors. Adjust the doors and preload the vacuum motors as follows:

Outside Air Door (1)

1. Remove the top cowl air inlet screen (Fig. 34, View A).
2. Loosen the Outside Air Door-to-vacuum motor mounting screws (Fig. 34, View B). Two slots are provided in the top of the motor mounting bracket for preload adjustment.
3. Move the vacuum motor outboard until the door hits the door limit stop on the motor mounting bracket (open-no vacuum). Continue to move the vacuum motor approximately 1/8-inch further outboard to preload the motor and tighten both mounting screws.
4. Install the screen.

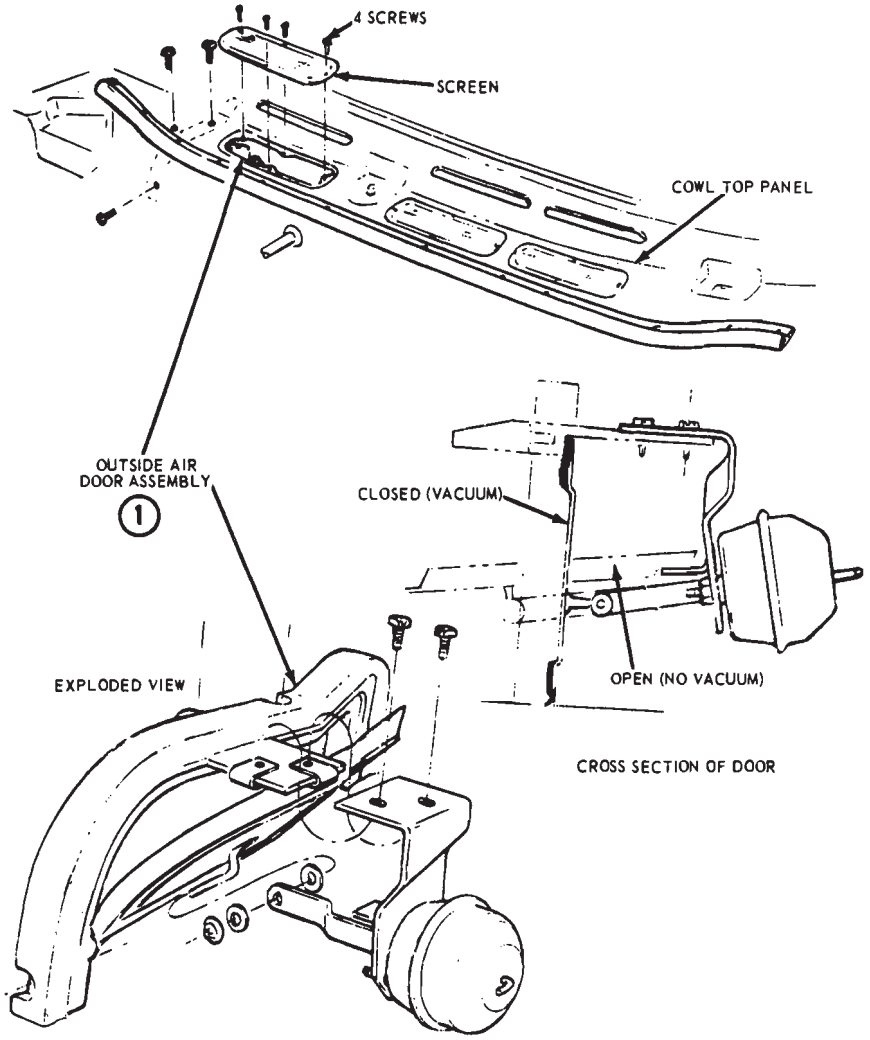


FIG. 34—Manual A/C-Heater System Outside Air Door Assembly—Lincoln Continental

Recirculating Air Door (2)

1. Remove the cowl trim panel.
2. Loosen the vacuum motor mounting plate screws. Two slots are provided in the mounting bracket for preload adjustment.
3. With the recirculating air door in the closed position, (no vacuum) move the vacuum motor outboard. Align the preload notch on the motor shaft with the base of the motor and tighten the two screws.
4. Install the trim panel.

Restrictor Air Door (3)

1. Loosen the motor mounting screws. Two slots are provided in the mounting bracket for preload adjustment.
2. Move the motor in its slots until the preload notch on the motor shaft is aligned with the body of the motor and tighten the screws.

Temperature Blend Door (5)

1. Loosen the two motor mounting screws.
2. With the aid of a mirror and light, move the motor on the mounting screws until the preload notch nearest the motor is 1/4-inch away from the motor body with the door in its normal position.
3. Tighten the mounting screws.

AC/Heat Door (6) and Heat/Defrost Door (7)

These two vacuum motors cannot be adjusted.

4 FORD, MERCURY AND METEOR REMOVAL AND INSTALLATION

EVAPORATOR CORE

REMOVAL

1. Discharge the refrigerant into the garage exhaust system if the refrigerant system still contains some refrigerant.
2. Remove the air cleaner.
3. Remove the insulation at the expansion valve and the hose ends.
4. Remove the high and low pressure hoses at the evaporator core.
5. Remove the evaporator front cover and heat shield attaching screws (Fig. 35). Remove the front cover and heat shield. Use care when withdrawing the icing switch capillary tube from the evaporator core.
6. Remove the evaporator top cover from the evaporator core housing (Fig. 35).
7. Remove the top section from the evaporator housing (Fig. 36).
8. Remove the glove compartment door. Then, remove the six screws holding the glove compartment liner. Remove the liner through the glove compartment door.
9. Remove the evaporator core retaining nut from the right side of the plenum chamber by reaching through the glove compartment opening (Figs. 36 and 37).
10. Remove the evaporator core from the evaporator housing.
11. Remove the expansion valve from the evaporator core.

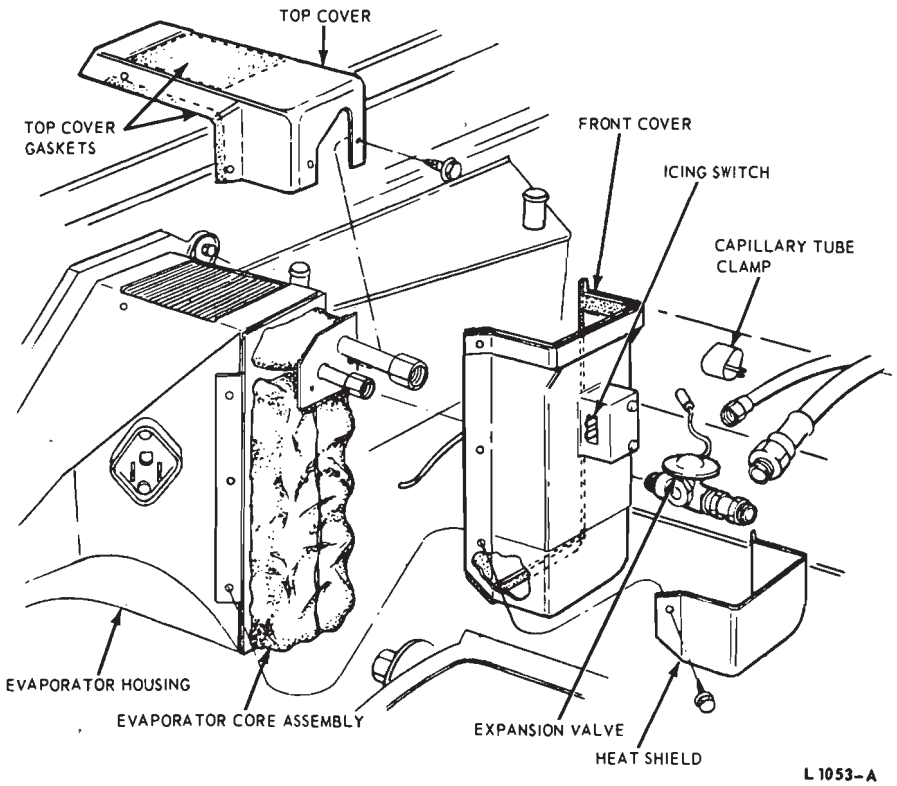


FIG. 35—Evaporator Covers—Ford, Mercury and Meteor

INSTALLATION

1. Install the expansion valve on the evaporator core and fasten the sensing bulb to the low pressure pipe.
2. Position the evaporator core in the housing and install the retaining nut.
3. Replace the glove compartment liner and install the attaching screws. Position the glove compartment door in place and install the attaching screws.
4. Fabricate a gasket to replace the top section removed from the top of the evaporator housing (Fig. 36).
5. Position the front cover to evaporator housing and insert the capillary tube straight into the hole in the evaporator core (Fig. 35). **No bends in the capillary tube are permissible.**
6. Install the evaporator housing top cover.
7. Position the heat shield to the front cover and install the attaching screws.
8. Install the high and the low pressure hoses on the evaporator.
9. Install the insulation on the expansion valve and on the end fittings of the hoses.

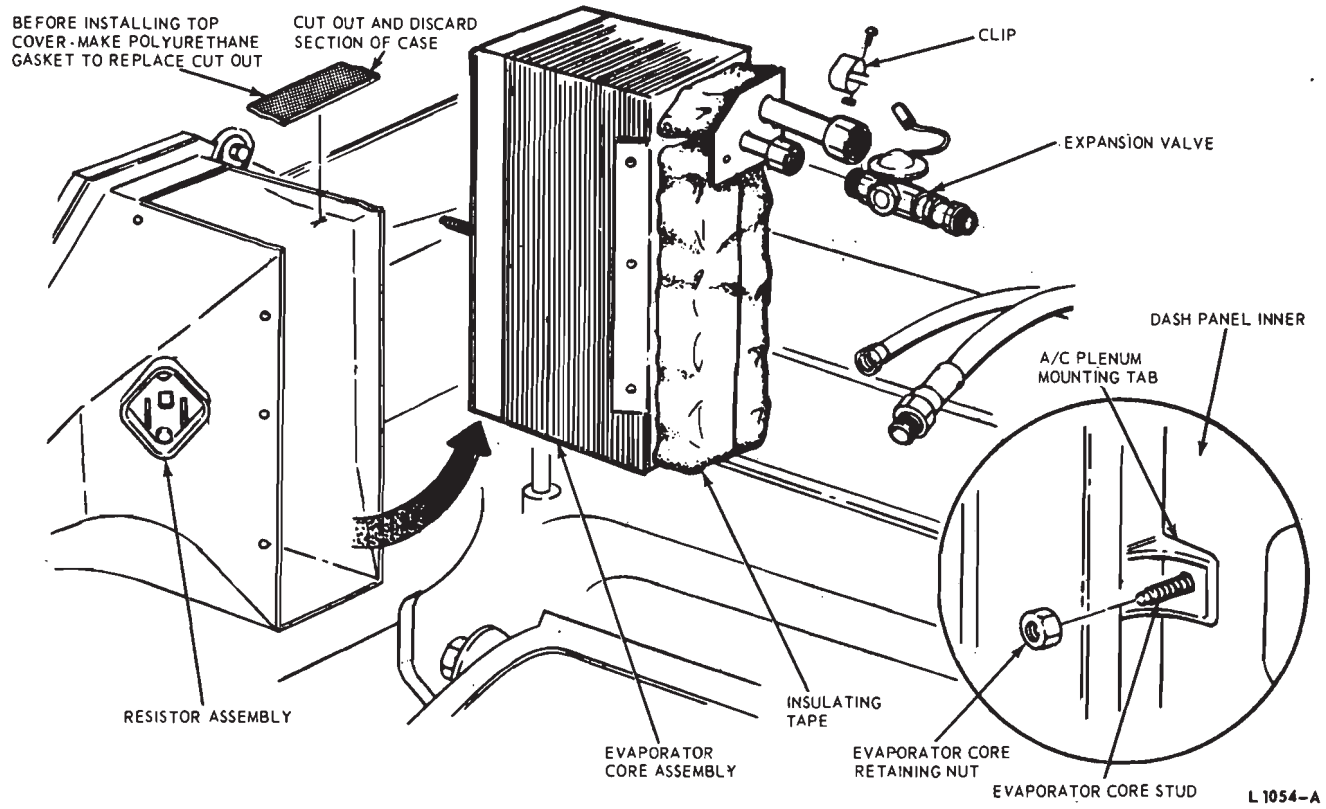


FIG. 36—Evaporator Core Removal—Ford, Mercury and Meteor

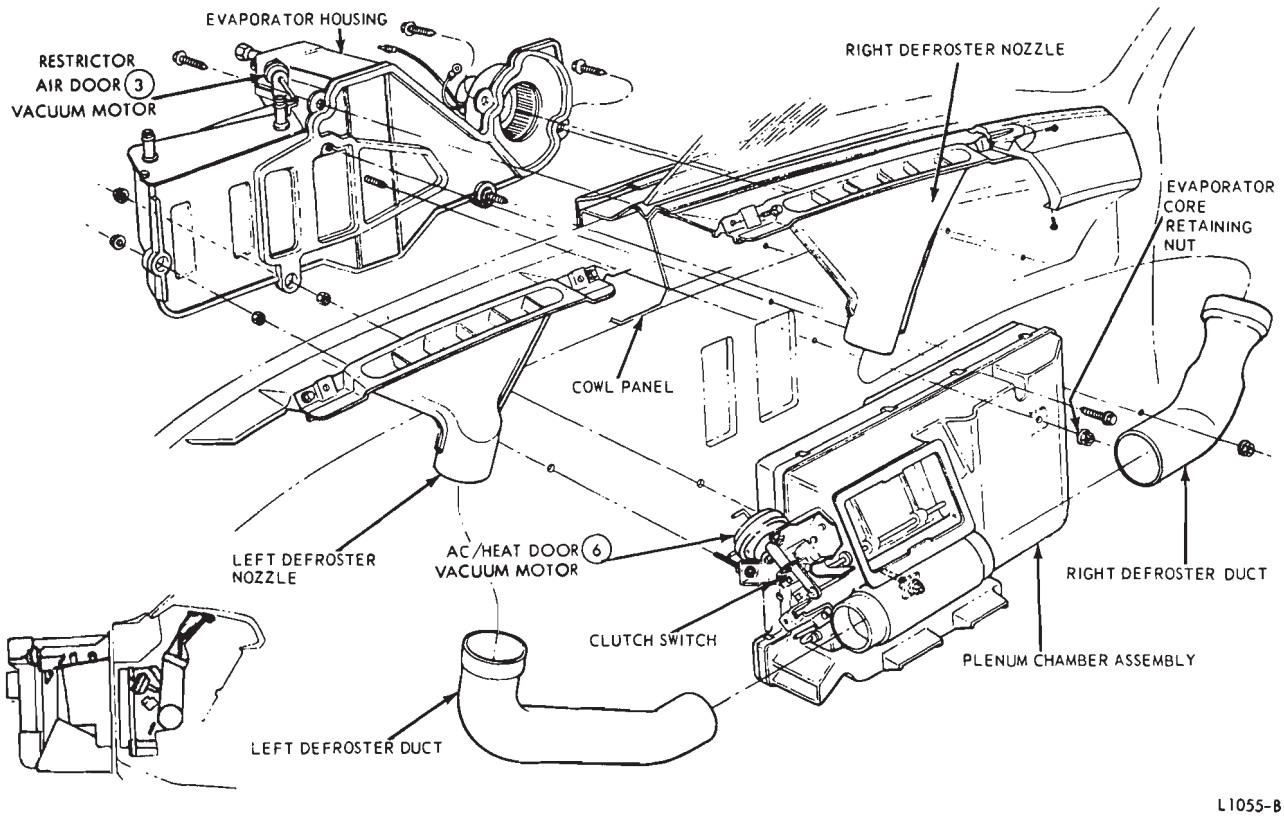


FIG. 37—Heater-Air Conditioning Installation—Ford, Mercury and Meteor

10. Leak test, evacuate and charge the system.

11. Install the air cleaner and test the air conditioning system.

EXPANSION VALVE

1. Discharge the air conditioning system.

2. Remove the insulation from the expansion valve and hose ends.

3. Loosen the clamp screw retaining the temperature sensing bulb to the evaporator pipe. Pull the bulb from the clamp.

4. Remove the high pressure hose from the expansion valve and remove the valve from the evaporator.

5. Connect the new expansion valve to the evaporator, clean the suction line and bulb clamp to assure good contact, slide the temperature sensing bulb in the clamp and tighten the mounting screw. **An aluminum evaporator with an aluminum suction tube must have an aluminum bulb clamp and tinned expansion valve capillary bulb.**

6. Connect the high pressure hose to the expansion valve and leak test the valve connections.

7. Install the insulation on the expansion valve and hose ends.

8. Evacuate and charge the system.

THERMOSTATIC (ICING) SWITCH

REMOVAL

1. Disconnect the thermostatic (icing) switch and resistor (Fig. 35). Position the wire harness to one side.

2. Remove the six screws retaining the evaporator core cover and heat shield. Pull the sensing tube from the evaporator core. Remove the front cover with the switch (Fig. 35).

3. Remove the two screws retaining the thermostatic (icing) switch to the front cover and remove the switch.

INSTALLATION

1. Position the new switch in place and install the two retaining screws.

2. Insert the sensing tube straight into the hole in the evaporator core (Fig. 35). **No bends in the sensing tube are permissible.**

3. Install the heat shield and front evaporator cover.

4. Connect the multiple connectors to the air conditioning switch and resistor assembly on the side of the evaporator housing.

DEFROSTER NOZZLES—FORD, MERCURY AND METEOR

1. Remove the instrument panel pad (Group 47).

2. Loosen the instrument panel brace to remove the left defroster nozzle.

3. Remove two defroster nozzle attaching screws and lift the nozzle up and out of the defroster duct (Fig. 37).

4. Position the nozzle to the defroster duct and dash panel, and install the two attaching screws.

5. Tighten the instrument panel brace (if loosened), and install the instrument panel pad.

HEATER CORE—FORD, MERCURY AND METEOR

1. Drain the cooling system.

2. Remove the carburetor air cleaner.

3. Remove two screws attaching the vacuum manifold to the dash panel above the heater core. Disconnect the vacuum hoses as necessary and position the manifold away from the heater core cover.

4. Disconnect the heater hoses from the heater core.

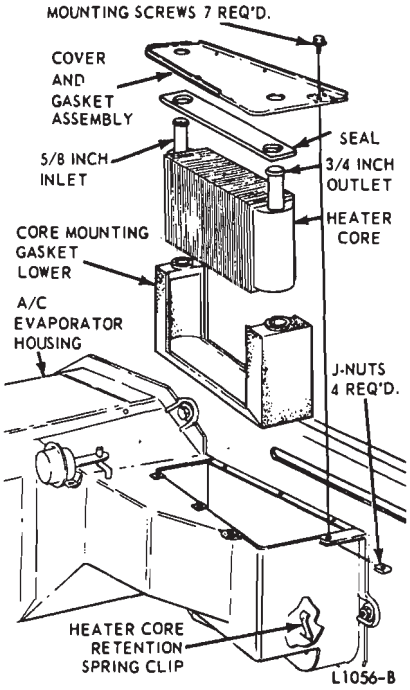


FIG. 38—Heater Core Removal—Ford, Mercury and Meteor

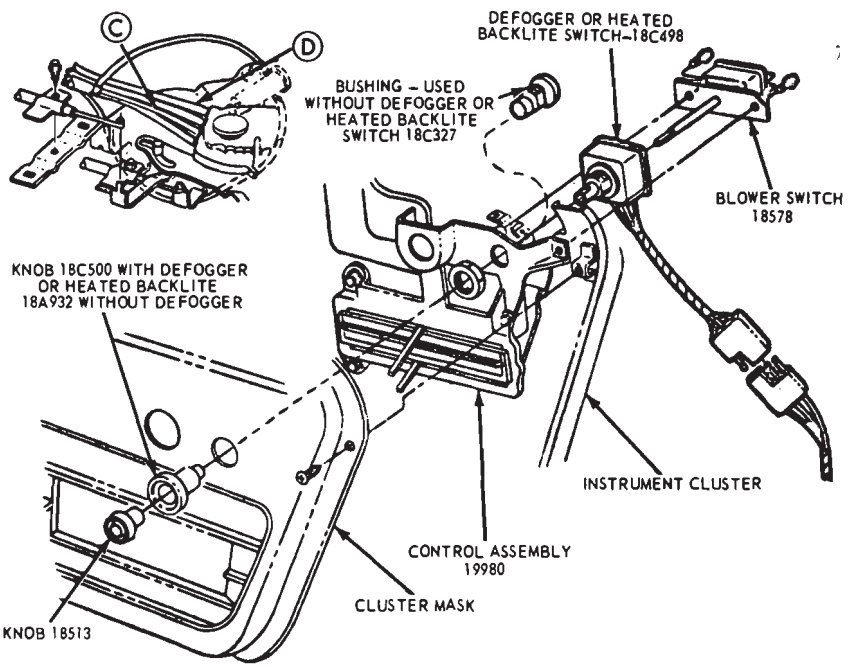


FIG. 39—Heater-A/C Control Assembly—Ford and Meteor

5. Remove seven heater core cover attaching screws and remove the core cover (Fig. 38).
6. Remove the heater core from the housing.
7. Remove the pad from the heater core.

INSTALLATION

1. Install the pad on the heater core.
2. Position the heater core in the housing and install the heater core cover.
3. Connect the heater hoses to the heater core.
4. Install the vacuum manifold and connect the vacuum hoses to the manifold.
5. Fill the cooling system and install the carburetor air cleaner.

BLOWER AND MOTOR

Refer to the heater blower and motor procedure in Part 34-03.

BLOWER SWITCH

Refer to the blower switch procedure in Part 34-03.

BLOWER RESISTOR

The blower motor resistor is located in the front side of the evaporator housing. To replace the resistor, disconnect the wires at the resistor and remove the two attaching plastic rivets.

CONTROL ASSEMBLY—FORD AND METEOR

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the instrument cluster mask (Group 33).
4. Disconnect the wire plug connector from the blower switch.
5. Disconnect the defogger switch wires at the multiple connector if equipped with a defogger (Fig. 39).
6. Disconnect the Bowden cables from the control assembly. Disconnect the vacuum hoses from the control assembly.
7. Disconnect the illumination light wire at the connector.
8. Remove three control assembly attaching screws, and pull the control assembly out from the front of the instrument panel.
9. If the control assembly is to be replaced, transfer the blower switch to the new control assembly.

INSTALLATION

1. Position the control assembly to the instrument panel and install the three attaching screws.
2. Connect the illumination light wire, blower and defogger or heated backlite switch wires.
3. Connect the Bowden cables to the control assembly. Connect the vacuum hoses to the control assembly.
4. Install the instrument cluster mask (Group 33).
5. Install the instrument panel pad (Group 47), and connect the battery cable.

CONTROL ASSEMBLY—MERCURY

REMOVAL

1. Disconnect the battery ground cable.
2. Pull the blower knob and the defogger knob off the switches.
3. Remove the left air vent knob and the brake release knob. Remove the cable retaining nuts and lower both cables.
4. Remove the screw retaining the left A/C duct to the instrument panel, and position the duct back.
5. Remove two screws attaching the control assembly to the instrument panel. Pull the control away from the instrument panel.
6. Disconnect the wire plug connectors from the blower switch and the defogger or heated backlite switch. Disconnect the illumination light wire.
7. Disconnect the Bowden cables

and vacuum hoses from the control assembly (Fig. 40), and remove the control assembly.

INSTALLATION

1. Connect the Bowden cables, vacuum hoses, illumination light wire and the plug connectors to the control assembly.
2. Position the control assembly to the instrument panel and install the two attaching screws.
3. Install the blower and defogger or heated backlite switch knobs.
4. Move the left A/C duct into place and install the retaining screw.
5. Install the left air vent and brake release cables and knobs.
6. Connect the battery ground cable.

TEMPERATURE BLEND DOOR (5) CONTROL CABLE—FORD, MERCURY AND METEOR

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the glove compartment liner.
4. Disconnect the wires from the thermostatic switch and the blower motor resistor, and position the wires to one side.
5. Remove six screws attaching the evaporator core front cover and heat shield to the evaporator housing. Pull the icing switch sensing tube from the evaporator core, and remove the evaporator front cover (Fig. 35).
6. Remove the evaporator core top cover.
7. Disconnect the control cable from the heater-A/C control assembly (Fig. 40).
8. Remove the nut and washer retaining the evaporator core to the dash panel (Fig. 37) under the instrument panel.
9. Remove the evaporator core from the evaporator housing.
10. Working through the evaporator core opening, remove the clip retaining the control cable to the temperature blend door (5) arm.
11. Remove the screw (located under the instrument panel) retaining the temperature blend door (5) control cable to the plenum chamber. Pull the cable out of the plenum chamber and remove the cable.

INSTALLATION

1. Insert the control cable into the plenum chamber and install the retaining screw.
2. Connect the cable to the temperature blend door (5) arm and install the retaining clip.
3. Position the evaporator core in the evaporator housing, and install the washer and nut retaining the evaporator core to the dash panel (under instrument panel, Fig. 37).
4. Install the glove compartment liner.
5. Connect the temperature blend door (5) control cable to the heater-A/C control assembly (Figs. 39 and 40).
6. Install the instrument panel pad (Group 18).
7. Install the evaporator core top cover.
8. Insert the icing switch sensing tube into the evaporator core, and install the front cover and heat shield.
9. Connect the wires to the thermostatic switch and blower motor resistor.
10. Connect the battery ground cable and adjust the temperature blend door (5) control cable at the turnbuckle.

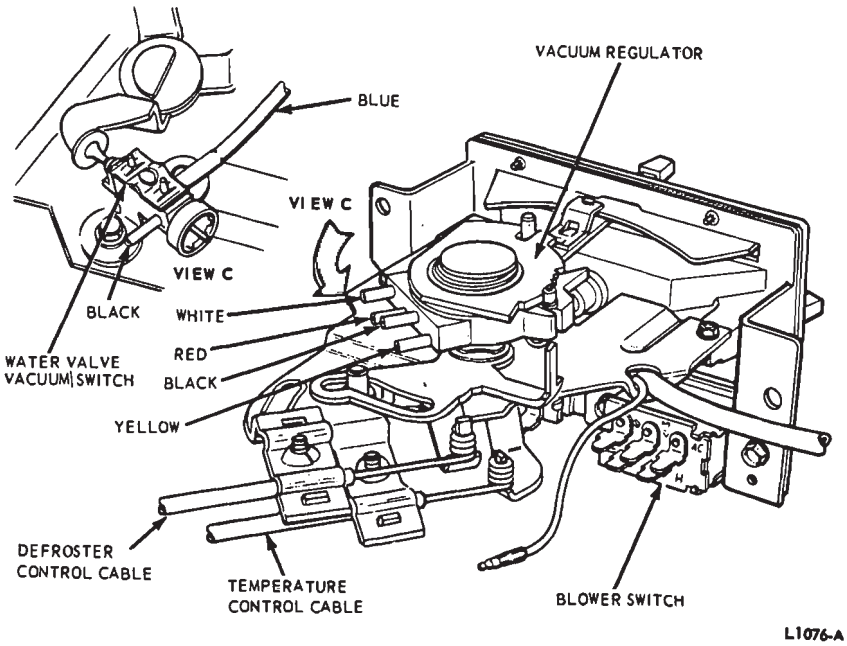


FIG. 40—Heater-A/C Control Assembly—Mercury

HEAT/DEFROST DOOR (7) CONTROL CABLE—FORD, MERCURY AND METEOR

Refer to Part 34-03 for the heat-/defrost door (7) control cable Removal and Installation procedure.

RESTRICTOR AIR DOOR (3) VACUUM MOTOR—FORD, MERCURY AND METEOR

1. Disconnect the motor link clip at the AC/heat door (6) lever.
2. Disconnect the vacuum hose at the motor and remove the retaining screws at the front of the evaporator case. Remove the motor.
3. Position the motor and fasten the two retaining screws to the front of the evaporator case.
4. Connect the link clip to the AC/heat door (6) lever and connect the vacuum hose to the motor.

OUTSIDE AIR DOOR (1) VACUUM MOTOR—FORD, MERCURY AND METEOR

REMOVAL

1. Remove the wiper arm and blade assemblies (Fig. 41).
2. Remove the cowl top grille.
3. Remove the screws retaining the motor to the bracket.
4. Mark the motor arm showing the proper adjustment and remove the adjusting screw (Fig. 41).
5. Disconnect the vacuum hose and remove the motor.

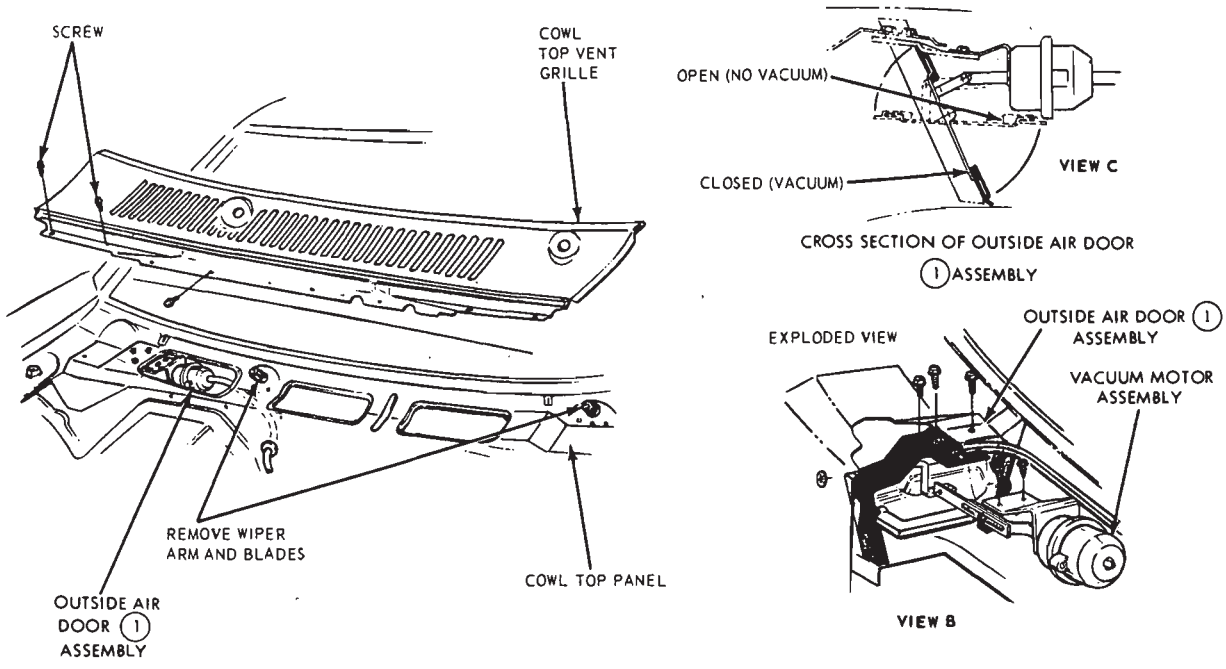


FIG. 41—Outside Air Door (1) Motor—Ford, Mercury and Meteor

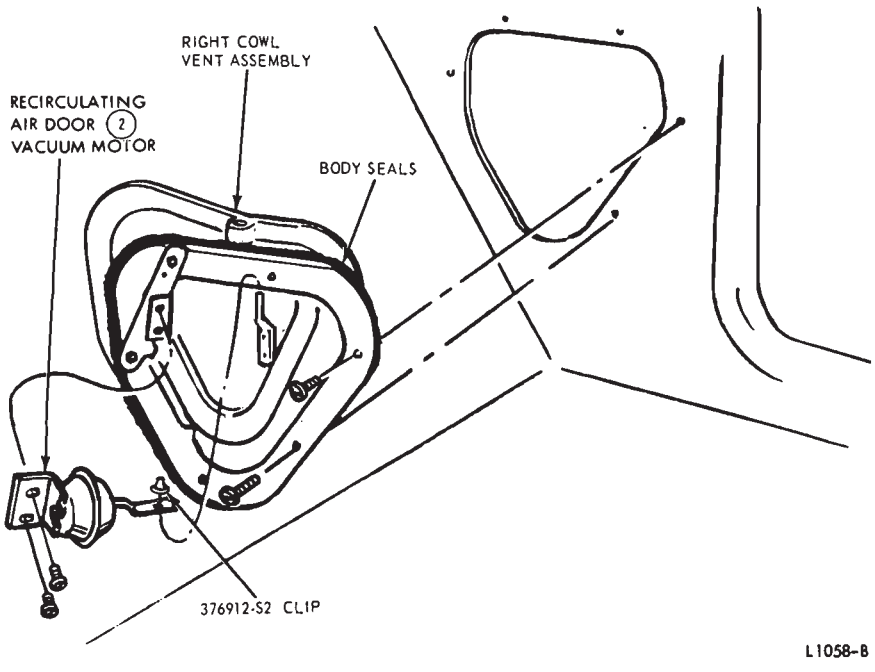


FIG. 42—Recirculating Air Door (2) Vacuum Motor—Ford, Mercury and Meteor

INSTALLATION

1. Install adjustment arm screw to the previous location and connect the vacuum hose.
2. Position the motor to the bracket and install the retaining screws (Fig. 41).
3. Install the cowl top grille.
4. Install the windshield wiper arms and blade assemblies.

RECIRCULATING AIR DOOR (2) VACUUM MOTOR

Remove the right side cowl trim panel. Then, remove the vacuum motor (Fig. 42).

AC/HEAT DOOR (6) VACUUM MOTOR

1. Remove the clip retaining the motor arm in the heat door lever.
2. Disconnect the vacuum hose from the vacuum motor.
3. Remove the two motor attaching screws and remove the motor.
4. Position the motor to the heat door lever and the evaporator housing.
5. Install the two attaching screws and the door lever clip.
6. Connect the vacuum hose to the motor.

RESTRICTOR AIR DOOR (3) VACUUM MOTOR

The restrictor air door (3) vacuum motor is attached to the top of the evaporator housing (Fig. 37). To remove the motor, remove the attaching screws and disconnect the vacuum

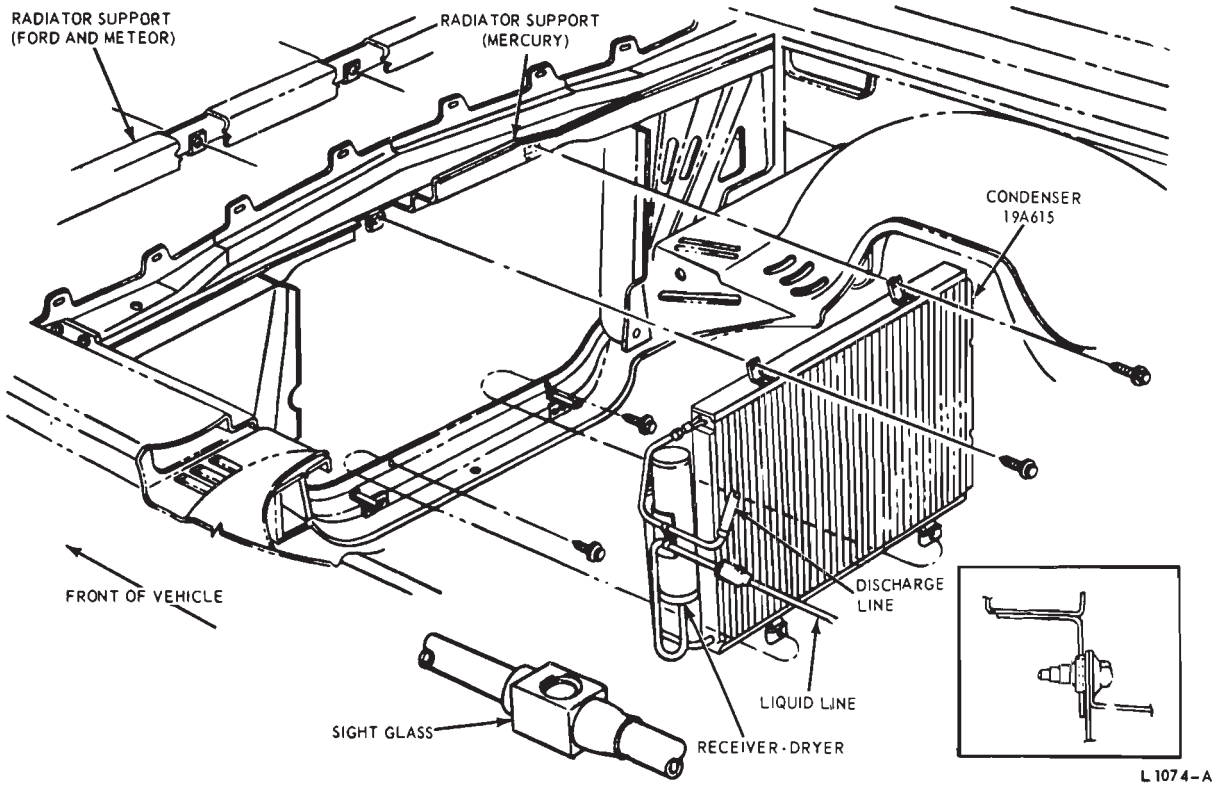


FIG. 43—Condenser and Receiver Tank—Ford, Mercury and Meteor

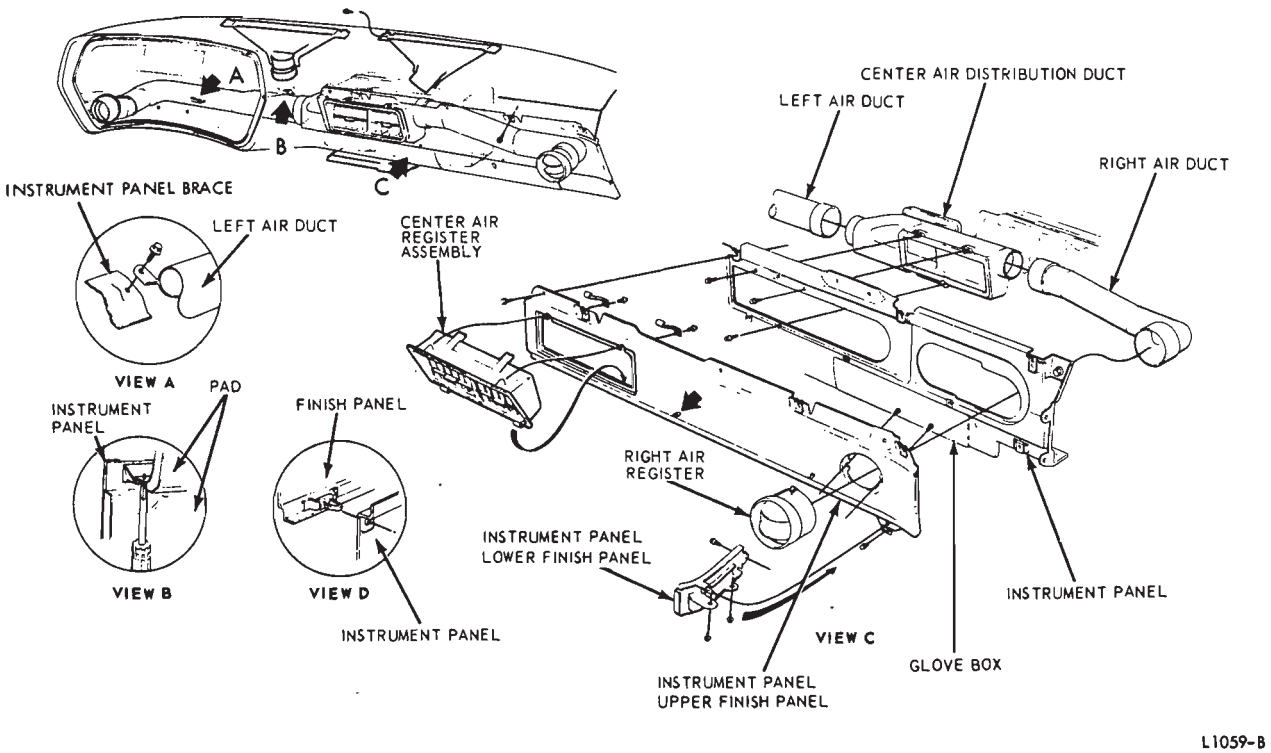


FIG. 44—Air Ducts and Registers—Ford and Meteor

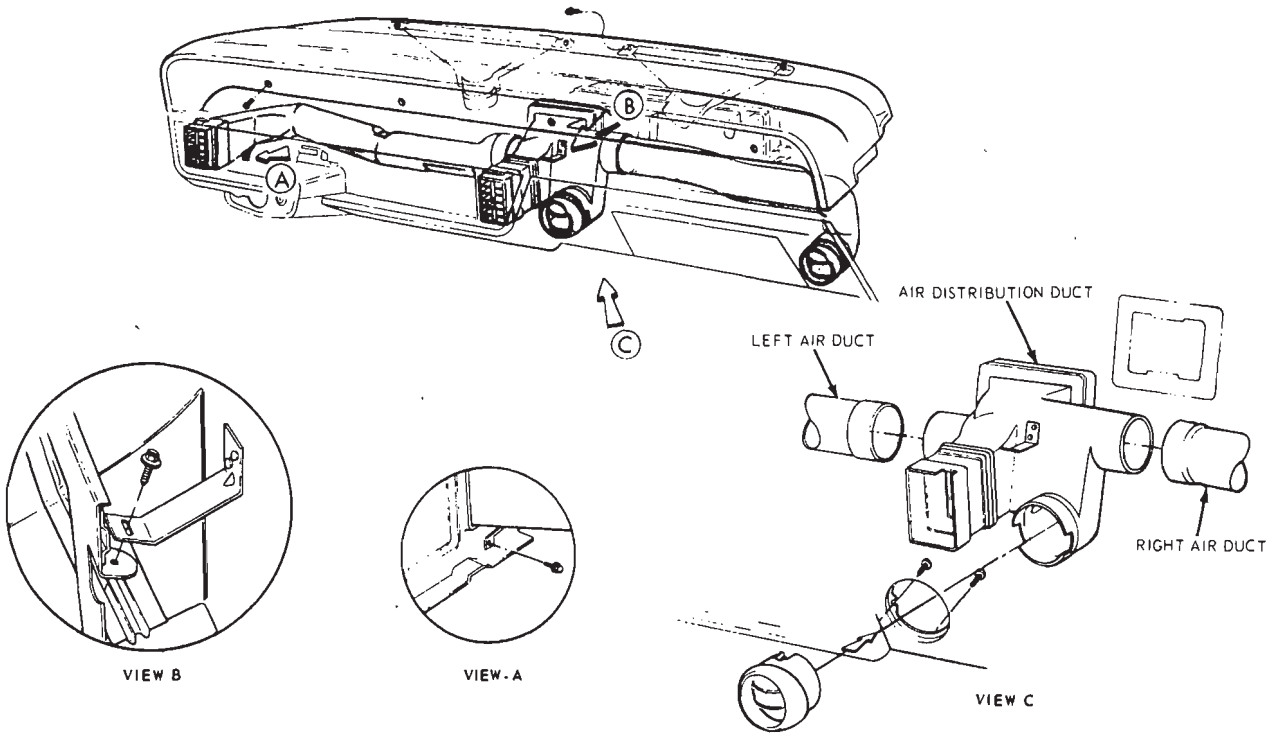


FIG. 45—Air Ducts and Registers—Mercury L1060-B

hose. Then, disengage the motor arm from the heater air door crank.

AC/HEAT DOOR (6) VACUUM MOTOR—FORD, MERCURY AND METEOR

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the left defroster nozzle and defroster duct.
4. Remove the vacuum motor arm retaining clip.
5. Disconnect the vacuum hoses from the vacuum motor.
6. Remove two vacuum motor retaining nuts and remove the vacuum motor (Fig. 37).

INSTALLATION

1. Connect the hoses to the vacuum motor, and position the motor to the mounting bracket. Install the two retaining nuts.
2. Install the vacuum motor arm retaining clip.
3. Install the left defroster duct and defroster nozzle.
4. Install the instrument panel pad (Group 47), and connect the battery cable.

HEATER WATER VALVE (4) FORD, MERCURY AND METEOR

REMOVAL

1. Drain the cooling system.
2. Remove the carburetor air cleaner.
3. Disconnect two water hoses and one vacuum hose from the heater water valve (4) and remove the valve.

INSTALLATION

1. Connect the water and vacuum hoses to the heater water valve (4).
2. Fill the cooling system.
3. Install the carburetor air cleaner.

CLUTCH SWITCH

Refer to the AC/Heat Door (6) Vacuum Motor procedure for access, as the clutch switch is attached to the same mounting bracket as the vacuum motor (Fig. 37).

CONDENSER AND RECEIVER TANK

Discharge the air conditioner system and drain the cooling system. Remove the radiator and disconnect the refrigerant lines. Then, remove the condenser attaching screws and remove the condenser and receiver tank through the radiator opening (Fig. 43).

INSTRUMENT PANEL REGISTERS—FORD AND METEOR

RIGHT AND CENTER REGISTERS

Remove the glove compartment liner and the instrument panel pad (Group 47). Disconnect the right air duct from the air register and remove the instrument panel upper finish panel and lower finish panel (Fig. 44). Remove the registers from the upper finish panel (Fig. 44).

LEFT REGISTER

To remove the left register, remove the instrument panel pad and the instrument cluster mask. Then, remove two screws attaching the register to the cluster (Fig. 44). To remove the left air duct, remove the instrument panel brace and the air duct retaining screw.

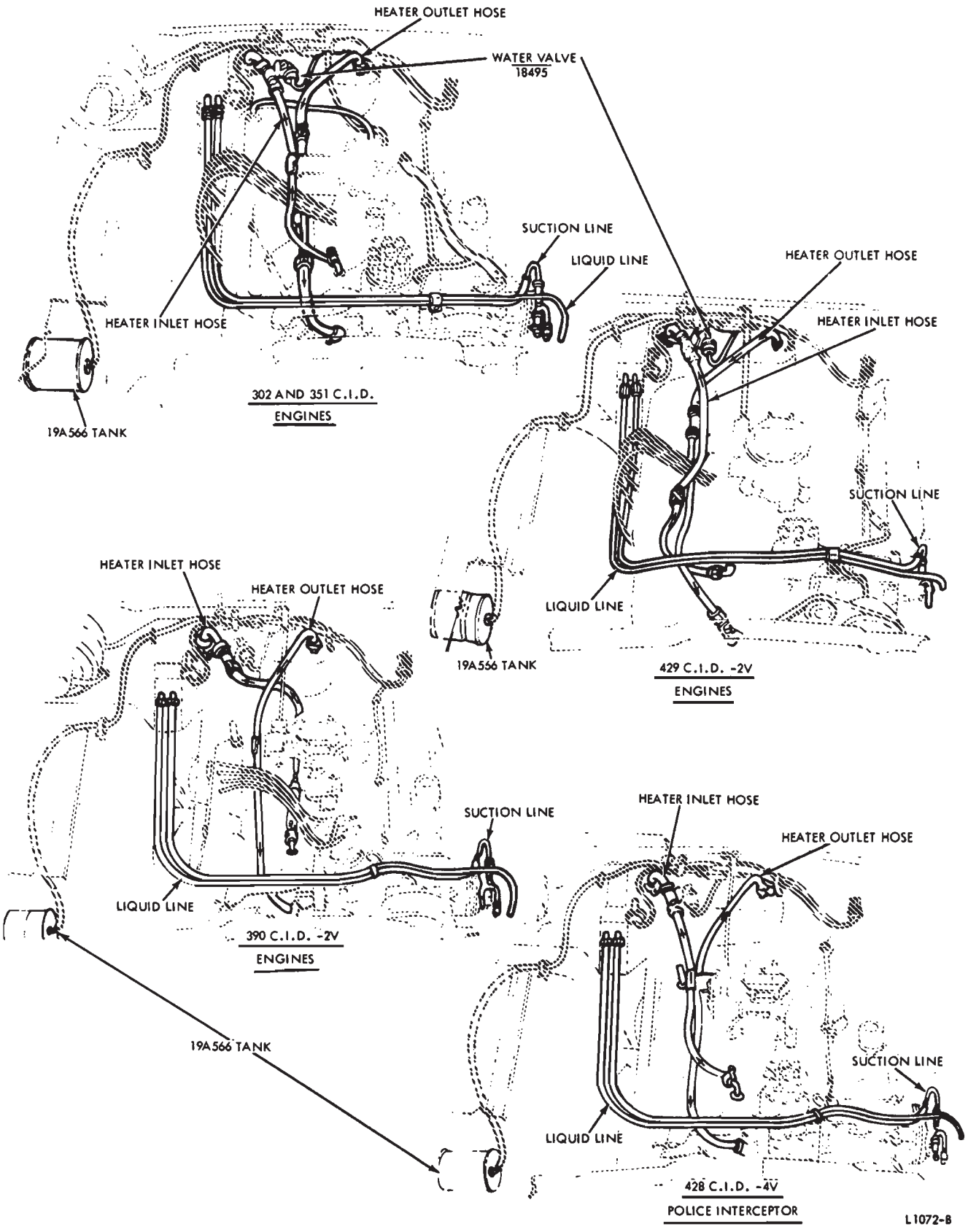


FIG. 46—Heater and Refrigerant Hose Routings—Ford, Mercury and Meteor

INSTRUMENT PANEL REGISTERS—MERCURY

RIGHT AND RIGHT CENTER REGISTERS

Remove the glove compartment liner and disconnect the air duct from the register (Fig. 45). Then, remove the two register attaching screws and pull the register from the instrument panel.

LEFT AND LEFT CENTER REGISTERS

The left and left center registers are riveted into the instrument panel and cannot be removed.

HEATER AND REFRIGERANT HOSES

The heater-air conditioner hose routings are shown in Fig. 46.

5 MUSTANG AND COUGAR REMOVAL AND INSTALLATION

A/C REGISTERS

CENTER REGISTER

Remove the instrument panel pad (Group 47). Remove the rivets attaching the center register to the center air duct (Fig. 47). Then, remove the register attaching screws and remove the register.

SIDE REGISTERS

Disconnect the air duct from the register. Loosen the three register retainer screws about 3/8 inch (Fig. 47). Then, twist the retainer counterclockwise to unlock the register and remove the register.

PLENUM CHAMBER

Remove the instrument panel pad (Group 47), and the center air duct (Fig. 47). Remove the air duct retaining clips and disconnect the air ducts from the plenum chamber. Disconnect the upper support bracket from the duct and the hose from the heat/defrost door (7) vacuum motor. Then, remove the plenum chamber.

RIGHT OR LEFT AIR DUCTS

Disconnect the air duct from the register. Remove the clip retaining the duct to the plenum chamber. Disconnect the right and left air ducts from the S-clips (Fig. 47, View D) and remove both air ducts.

DEFROSTER NOZZLE

Remove the plenum chamber. Then, remove three defroster nozzle retaining nuts and remove the defroster nozzle (Fig. 48).

HEATER—A/C CONTROL

REMOVAL

1. Remove the radio knobs and remove the instrument panel center finish panel from around the heater-A/C control.
2. Remove the heater-A/C control attaching screws. Remove the radio (Group 35) and the ash tray from the instrument panel. Pull the control away from the instrument panel.
3. Disconnect the two control cables from the control.
4. Disconnect the blower switch and illumination bulb wires.
5. Disconnect the vacuum hoses from the control assembly.

INSTALLATION

1. Position the heater A/C control near the instrument panel opening. Connect the vacuum hoses, wires and control cables to the heater control.
2. Position the heater A/C control to the instrument panel. Install the radio (Group 35) and the ash tray. Then, install the control attaching screws.
3. Install the instrument panel center finish panel and the radio control knobs.

HEATER—AIR CONDITIONER ASSEMBLY

REMOVAL

1. Disconnect the battery ground cable and remove the carburetor air cleaner.
2. Connect a manifold gauge set to the compressor service valves and isolate the compressor. If the heater-air conditioner is being removed for repair to the refrigerant system, discharge the refrigerant system.
3. Drain the cooling system and remove the heat shield from the expansion valve.
4. Disconnect the suction (low pressure) refrigerant hose and service valve from the compressor.
5. Disconnect the high pressure hose at the quick disconnect.
6. Remove the straps retaining the refrigerant hoses to the dash-to-fender apron supports.
7. Disconnect the heater hoses from the heater core. Remove the upper and lower seal retainers and remove the hose seal (Fig. 49).
8. Remove two evaporator housing mounting stud nuts and the blower housing mounting stud nut from the engine side of the dash panel.
9. Remove the instrument panel pad (Group 47).
10. Remove the glove compartment assembly and support.
11. Remove the instrument cluster assembly (Group 33).
12. Disconnect the vacuum hoses from the restrictor air door (3) and outside air (1) and recirculating air (2) door vacuum motor (Fig. 50).
13. Disconnect the two vacuum hoses from the water valve vacuum switch.
14. Disconnect the control cable from the temperature blend door (5).
15. Disconnect the wires from the A/C thermostat switch (Fig. 50).
16. Disconnect the right and left air ducts from the Plenum Chamber (Fig. 47) and remove the air ducts.
17. Remove the A/C defrost plenum chamber (Fig. 48).
18. Remove the instrument panel right side brace.
19. Remove the evaporator housing upper rear support bracket-to-cowl attaching screw (Fig. 50).
20. Remove two blower housing-to-cowl attaching screws (Fig. 50).
21. Move the blower housing to the left away from the evaporator housing.

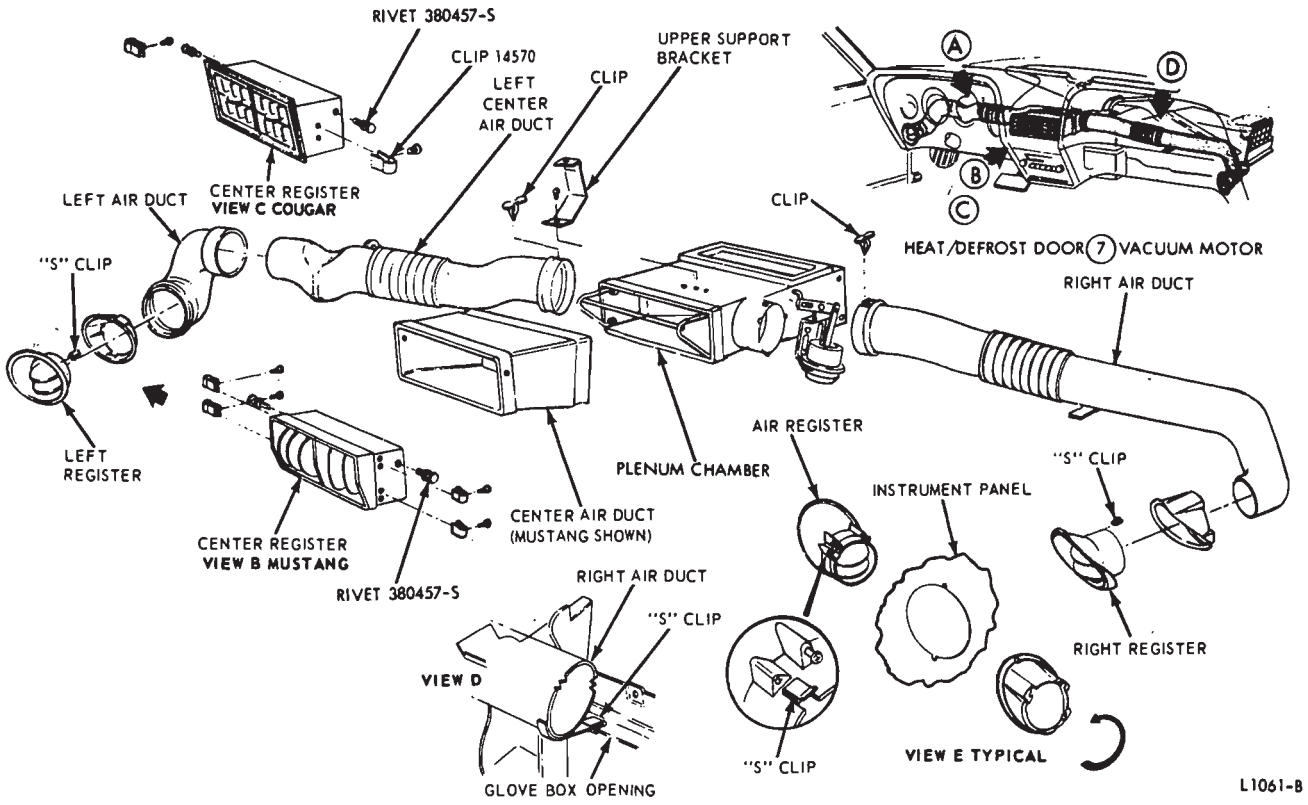


FIG. 47—A/C Registers and Ducts—Mustang and Cougar

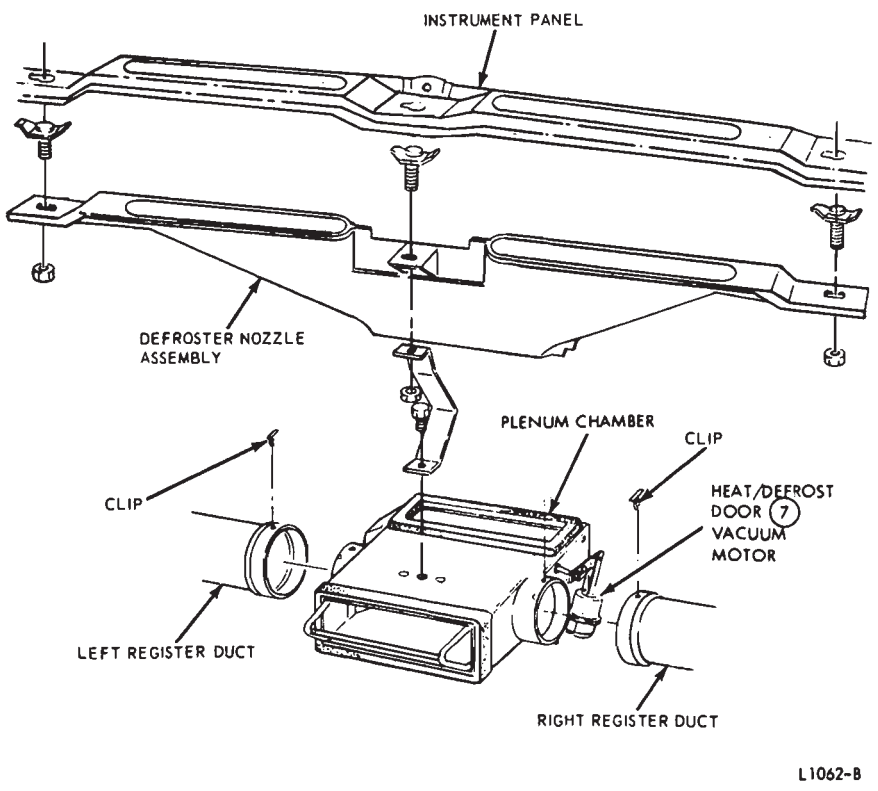


FIG. 48—Defroster Nozzle Installation—Mustang

22. Cover the carpet and pull the drain tube from the hole in the floor pan.
23. Remove two instrument panel-to-cowl panel attaching screws from the right side.
24. Remove the instrument panel lower finish cover from around the steering column. Remove the nuts and studs retaining the instrument panel to the steering column support.
25. Remove two instrument panel-to-cowl panel attaching screws from the left side.
26. Position the instrument panel back and remove the evaporator housing from the vehicle.

INSTALLATION

1. Route the refrigerant hoses through the dash panel.
2. Position the blower assembly to the evaporator housing, and position the evaporator housing and blower housing to the dash panel.
3. Install the evaporator housing upper rear support bracket-to-cowl attaching screw, but do not tighten the screw.
4. Install the two evaporator housing and one blower housing mounting stud nuts on the engine side of the dash panel.

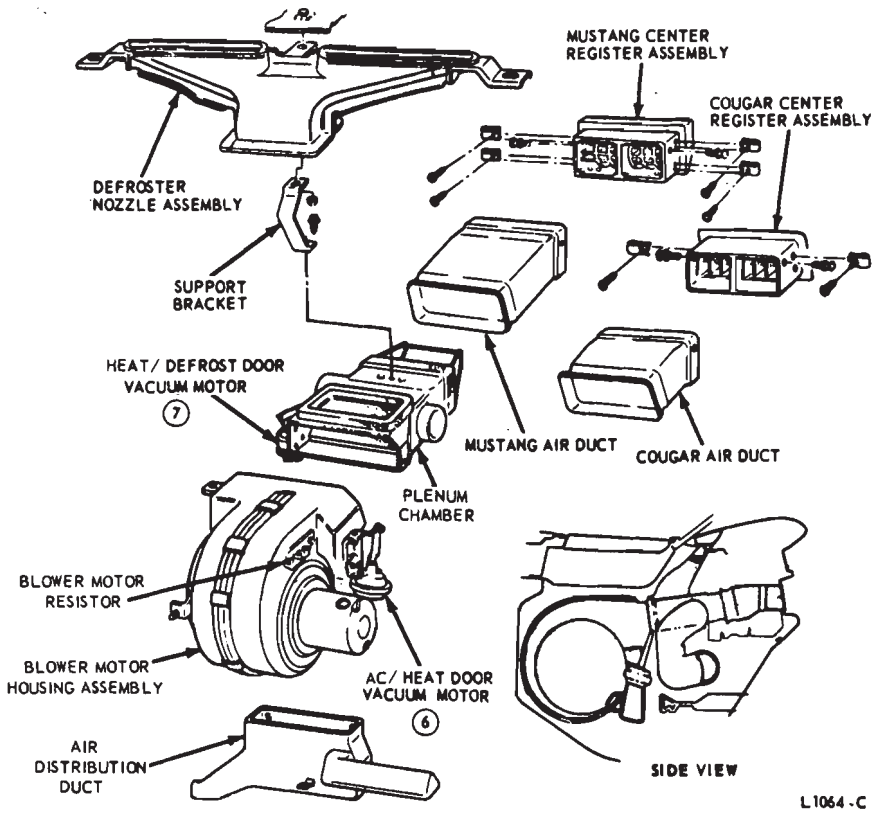


FIG. 49—Heater-Air Conditioner—Mustang and Cougar

5. Tighten the upper rear support bracket attaching screw.

6. Connect the vacuum hoses to the retrictor air (3) door and the outside air (1) and recirculating air (2) door vacuum motors, and the water valve vacuum switch.

7. Connect the wires to the A/C thermostat switch.

8. Install the two blower housing-to-cowl attaching screws.

9. Install the hose seal and retainers on the engine side of the dash panel.

10. Connect the heater hoses to the heater core.

11. Connect the refrigerant hoses to the compressor and the quick disconnect. Install the refrigerant hose support straps.

12. Install the heat shield over the expansion valve, and fill the cooling system.

13. Connect the control cable to the temperature blend door.

14. Install the four instrument panel attaching screws, and the nuts and studs retaining the instrument panel to the steering column support. Then, align the instrument panel, and tighten the attaching screws and the nuts and studs securely.

15. Install the instrument panel lower finish cover around the steering column.

16. Install the plenum chamber and connect the vacuum hose to the vacuum motor (Fig. 47).

17. Connect the air ducts to the plenum chamber (Fig. 47).

18. Install the instrument panel right side brace.

19. Install the evaporator housing drain tube in the hole in the floor pan.

20. Install the glove compartment assembly and support.

21. Install the instrument cluster (Group 33), and the instrument panel pad (Group 47).

22. Install the carburetor air cleaner and connect the battery ground cable.

23. Leak test and evacuate the compressor, and connect the compressor back into the system (See Isolating the Compressor in Section 3). If the A/C refrigerant system was discharged, it will be necessary to leak test, evacuate and charge the system.

HEATER CORE

REMOVAL

1. Remove the heater-air conditioner assembly from the vehicle.

2. Remove the flange clips from the evaporator housing, and remove the top half of the housing (Fig. 50).

3. Remove the water valve vacuum switch (Fig. 50).

4. Remove the temperature blend door (5) shaft, door frames and the temperature blend door (5) from the lower half of the evaporator housing.

5. Remove the heater core from the evaporator lower housing. Remove the pads from the heater core.

INSTALLATION

1. Install the pads on the heater core, and position the core in the evaporator lower housing (Fig. 50).

2. Install the temperature blend door (5) lower frame. Then, install the temperature blend door (5), shaft, and upper frame.

3. Install the water valve vacuum switch.

4. Position the evaporator housing top half to the lower half, and install the flange clips (Fig. 50).

5. Install the heater-air conditioner assembly in the vehicle.

EVAPORATOR CORE

REMOVAL

1. Discharge the A/C system (NOTE SAFETY PRECAUTIONS) and remove the heater-air conditioner assembly from the vehicle.

2. Disconnect the expansion valve and refrigerant hose from the evaporator core.

3. Remove the flange clips from the evaporator housing, and remove the top half of the housing (Fig. 50).

4. Slide the A/C thermostat (icing) switch capillary tube out of the hole in the evaporator housing.

5. Remove the dash panel stud mounting bracket from the top half of the evaporator housing (Fig. 50).

6. Remove the evaporator core retaining screws, and remove the evaporator core (Fig. 50).

7. Remove the grommet from the evaporator core.

INSTALLATION

1. Install the grommet on the evaporator core tubes, and position the evaporator core in the upper housing.

2. Install the dash panel stud mounting bracket and the evaporator core retaining screws.

3. Insert the A/C thermostat (icing) switch capillary tube into the

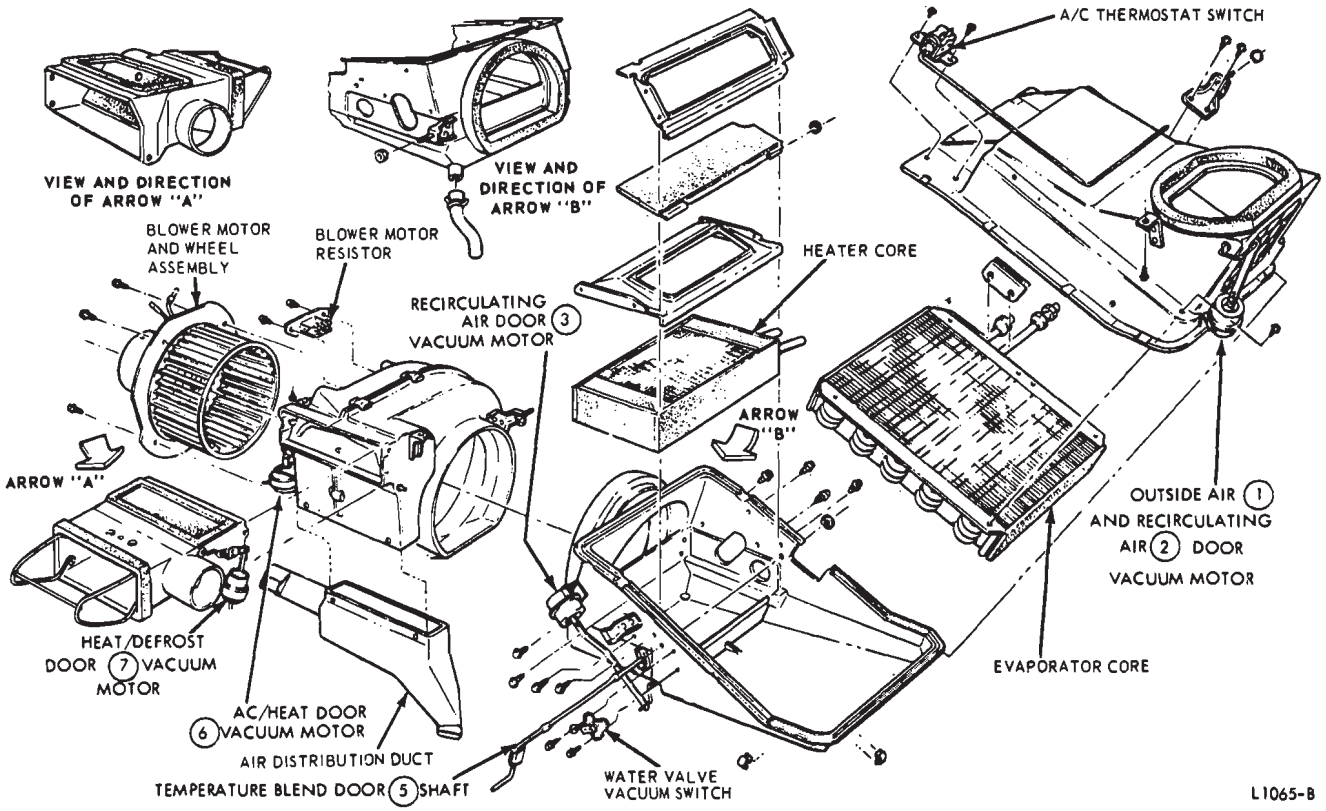


FIG. 50—Heater-Air Conditioner Disassembled—Mustang and Cougar

hole in the evaporator housing and into the evaporator core.

4. Position the top half of the evaporator housing on the lower half and install the flange clips.

5. Connect the expansion valve and refrigerant hose to the evaporator core.

6. Install the heater-air conditioner assembly in the vehicle. Leak test, evacuate and charge the A/C system.

EXPANSION VALVE

REMOVAL

1. Remove the carburetor air cleaner.

2. Remove the insulation from the expansion valve.

3. Install a manifold gauge set and discharge the system (Section 3).

4. Disconnect the high pressure hose from the expansion valve.

5. Remove the expansion valve bulb from the clamp.

6. Remove the expansion valve from the evaporator core.

INSTALLATION

1. Install the expansion valve on the evaporator core fitting.

2. Position the expansion valve sensing bulb in the clamp and tighten the retaining screw.

3. Connect the high pressure hose to the expansion valve.

4. Wrap the insulation around the sensing bulb and expansion valve.

5. Install the carburetor air cleaner.

6. Leak test, evacuate, and charge the system (Section 3).

THERMOSTATIC (ICING) SWITCH

REMOVAL

1. Remove the glove box liner.

2. Disconnect the wires from the thermostatic (icing) switch.

3. Remove two switch attaching screws and pull the sensing tube from the evaporator core.

INSTALLATION

1. Insert the thermostatic (icing) switch sensing tube into the evaporator core fins.

2. Position the thermostatic (icing) switch to the evaporator case and install the two attaching screws.

3. Connect the wires to the switch.

4. Install the glove box liner and check the operation of the thermostatic (icing) switch.

CLUTCH SWITCH

Remove the heater-A/C control assembly from the instrument panel. Disconnect the two wires from the clutch switch, and remove the 2 switch attaching screws.

DEHYDRATOR—RECEIVER TANK

REMOVAL

1. Discharge the refrigerant into the garage exhaust system if the cooling system still contains some refrigerant.

2. Remove the left horn.

3. Disconnect the two upper hoses from the tank (Fig. 51).

4. Loosen the lower fitting. Remove the screws retaining the receiver tank to the condenser. Then, disconnect the lower fitting and remove the tank.

INSTALLATION

1. Position the receiver tank and loosely fasten the lower fitting. Install the screws retaining the tank to the

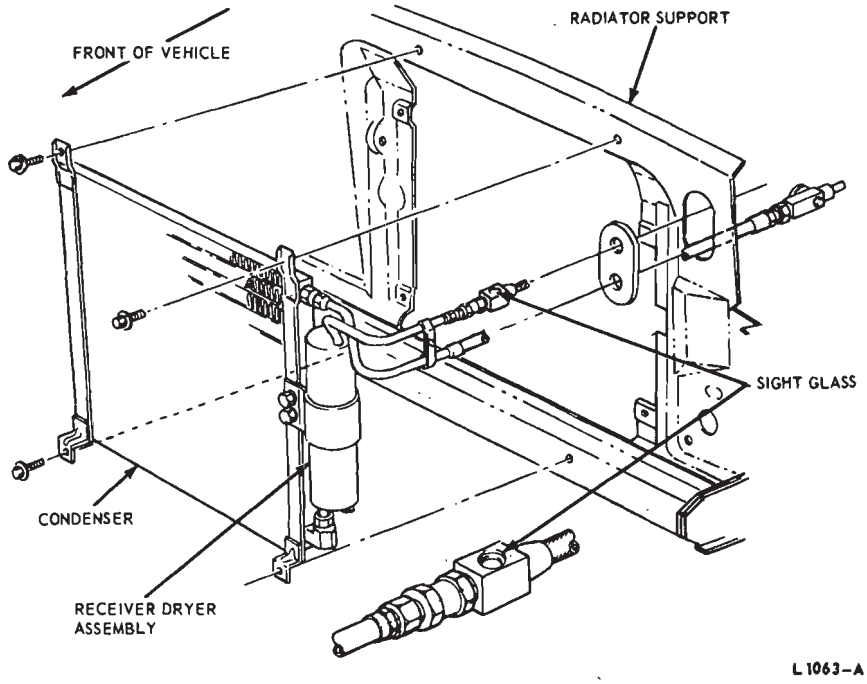


FIG. 51—Condenser Installation—Mustang and Cougar

condenser. Tighten the lower fitting (Fig. 52).

2. Connect the upper hoses to the tank.

3. Install the left horn.

4. Leak Test, Evacuate, and charge the air conditioning system. Check the air conditioning system for proper operation.

CONDENSER—COUGAR

REMOVAL

1. Discharge the system.
2. Remove both horns.
3. Remove the hood lock and support assembly (Fig. 51).
4. Disconnect the hose from the compressor-to-condenser at the condenser (Fig. 52).
5. Disconnect the evaporator-to-condenser hose at the receiver tank.
6. Remove the four screws retaining the condenser-to-radiator support. Remove the condenser.
7. Remove the receiver tank.

INSTALLATION

1. Position the receiver to the condenser. Install the retaining screws and fasten the fitting.
2. Position the condenser-to-radiator support and install the four retaining screws.
3. Connect the evaporator-to-condenser hose at the receiver tank (Fig. 51).
4. Fasten the compressor-to-condenser hose.
5. Install the hood lock and support assembly.
6. Install both horns.
7. Leak test, evacuate, and charge the air conditioning system. Check for proper operation.

CONDENSER—MUSTANG

Discharge the air conditioner refrigerant system. Remove the hood latch support and the horns. Disconnect the refrigerant lines and remove four condenser attaching screws. Then, remove the condenser (Fig. 51).

RECIRCULATING AIR DOOR (2) VACUUM MOTOR

REMOVAL

1. Remove the glove compartment strap screw and let the glove compartment liner hang down.
2. Disconnect the vacuum hose and disconnect the right register assembly (Fig. 5). Position the duct to one side.
3. Remove the right courtesy light and position it to one side.
4. Remove the screw connecting the motor arm to the control rod.
5. Remove the two screws retaining the motor to the mounting bracket and remove the motor.

INSTALLATION

1. Position the motor to the mounting bracket and fasten the retaining screws.
2. Install the screw connecting the motor arm to the control rod.
3. Connect the hose to the motor and connect the right duct to the right register assembly.
4. Install the courtesy light.
5. Position the glove compartment liner in place and install the strap retaining screw.

AC/HEAT DOOR (6) VACUUM MOTOR

1. Disconnect the vacuum hoses from the vacuum motor.
2. Remove the vacuum motor attaching screws and disconnect the vacuum motor arm from the AC/heat door (6) arm link (Fig. 49).
3. Position the vacuum motor to the AC/heat door (6) arm link and the blower housing, and install the attaching screws.
4. Connect the vacuum hoses to the motor as shown in Fig. 3, Part 34-03.

HEAT/DEFROST DOOR (7) VACUUM MOTOR

REMOVAL

1. Disconnect the battery ground cable and remove the instrument panel pad (Group 47).
2. Remove the instrument cluster (Group 33).
3. Disconnect the air ducts from the plenum chamber and move the air ducts aside.
4. Remove the plenum chamber. Then, remove the heat/defrost door (7).

INSTALLATION

1. Install the vacuum motor on the plenum chamber and install the plenum chamber.
2. Connect the air ducts to the plenum chamber.
3. Install the instrument cluster (Group 33) and the instrument panel pad (Group 47).
4. Connect the battery ground cable to the battery.

RESTRICTOR AIR DOOR (3) VACUUM MOTOR

REMOVAL

1. Remove the instrument panel

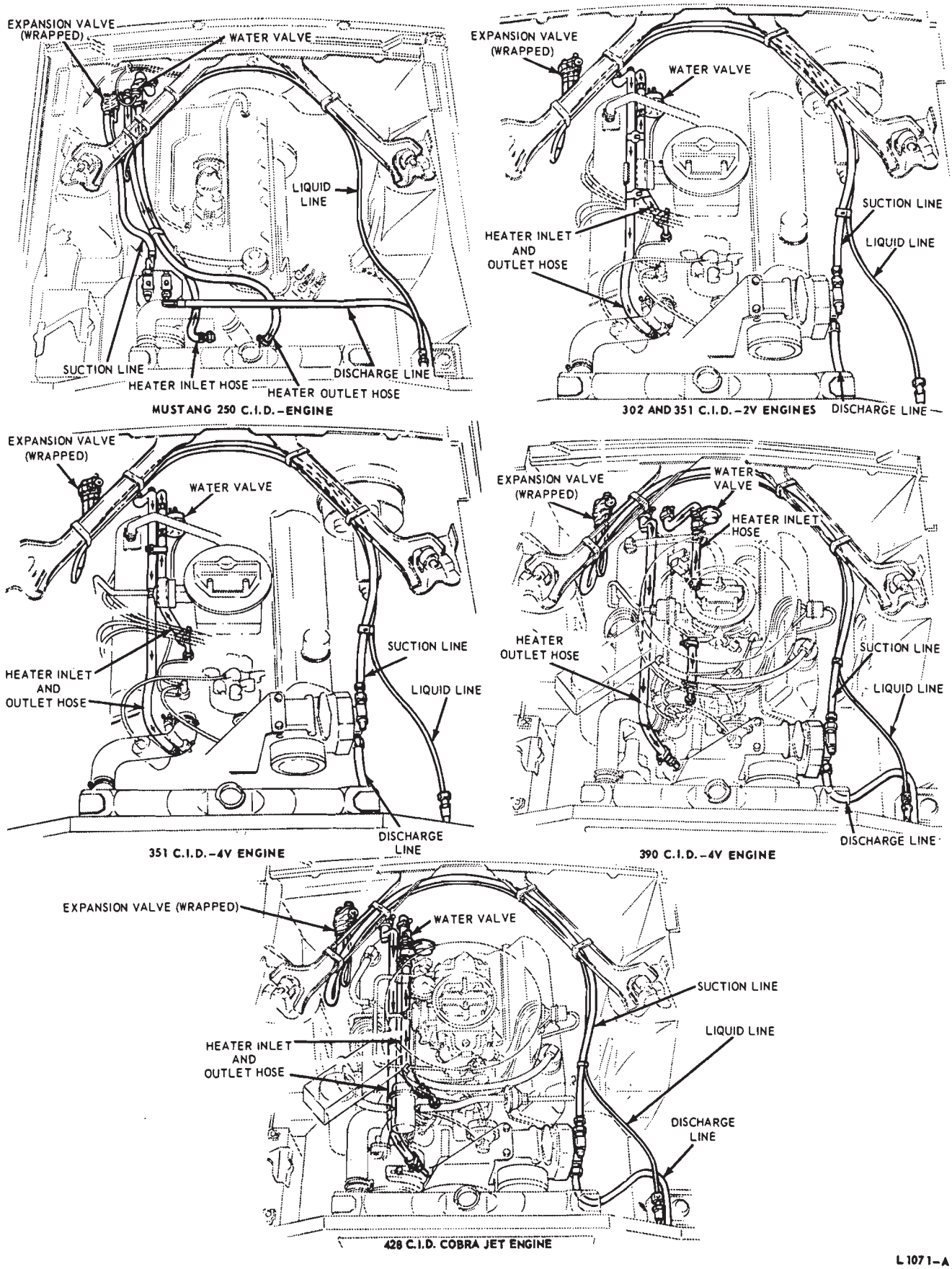


FIG. 52—Heater and Refrigerant Hose Routings—Mustang and Cougar

pad (Group 47) and disconnect the battery.
2. Remove the glove compartment check strap.
3. Remove the instrument cluster (Group 33).
4. Remove the plenum chamber.
5. Disconnect the vacuum hose from the restrictor air door (3) vacuum motor.
6. Remove the two motor attaching screws (Fig. 50).
7. Working through the glove compartment opening, remove the motor arm-to-link screw and remove the restrictor air door (3) vacuum motor.

INSTALLATION

1. Position the vacuum motor arm to the link and install the attaching screw.
2. Position the vacuum motor to the evaporator housing, and install the attaching screws (Fig. 50).
3. Connect the vacuum hose to the vacuum motor.
4. Install the plenum chamber (Fig. 47).
5. Install the instrument cluster (Group 33), and the instrument panel pad (Group 47).
6. Install the glove compartment check strap, and connect the battery.

BLOWER AND MOTOR

REMOVAL

1. Remove the accelerator pedal assembly.
2. Remove the lower air distribution duct (Fig. 49).
3. Disconnect the blower motor wiring.
4. Remove the four blower motor mounting plate attaching screws, and remove the blower and motor (Fig. 50).

INSTALLATION

1. Position the blower and motor to the blower housing and install the attaching screws.
2. Connect the blower motor wiring.
3. Install the lower air distribution duct.
4. Install the accelerator pedal assembly.

BLOWER RESISTOR AND BLOWER SWITCH

Refer to the blower resistor procedure in Part 34-03.

HEATER AND REFRIGERANT HOSES

The heater-air conditioner hose routings are shown in Fig. 52.

6 FALCON, MAVERICK, FAIRLANE AND MONTEGO REMOVAL AND INSTALLATION

EVAPORATOR HOUSING—FALCON, FAIRLANE, AND MONTEGO

REMOVAL

1. Remove the carburetor air cleaner and disconnect the battery ground cable.
2. Drain the cooling system.
3. Discharge the air conditioning system (NOTE SAFETY PRECAUTIONS).
4. Disconnect the high and low pressure refrigerant lines at the expansion valve.
5. Remove two screws attaching the two-piece seal retainer to the dash panel and remove the retainer and refrigerant hose seal.
6. Disconnect the three heater hoses at the dash panel (Fig. 53).
7. Disconnect the two clutch wires from the vacuum switch mounted on the water valve mounting plate.
8. Disconnect the vacuum hoses at the water valves, clutch switch, and vacuum supply tank. Push the vacuum hose-wire harness through the dash panel into the passenger compartment.
9. Remove the drain tube hose clamp, hose, and seal from the evaporator housing.
10. Remove the snap-in clip retaining the defroster nozzle assembly to the heat/defrost plenum chamber, and disengage the defroster nozzle from the plenum (Fig. 56).
11. Disconnect the red-stripe vacuum hose from the heat/defrost door (7) vacuum motor.
12. Remove two screws attaching the heat-defrost plenum chamber to the evaporator housing and remove the plenum chamber (Fig. 54).
13. Remove the glove compartment liner.
14. Disconnect the vacuum hose from the outside air (1) and recirculating air (2) door vacuum motor.
15. Remove three nuts retaining the right vent to the cowl top panel and remove the vent assembly (Fig. 54).
16. Disconnect the vacuum connectors from the control assembly (Figs. 6, 7 and 8).
17. Disconnect the temperature blend door (5) control cable from the control assembly.
18. Disconnect the wires from the blower resistor and icing switch (Fig. 54).
19. Disconnect the right, left, and center A/C air duct flexible hoses from the center air duct. Remove the right flexible hose from the vehicle (Fig. 55).
20. Remove the stud fastener and disconnect the center air duct from the evaporator housing A/C duct (Fig. 55).
21. Remove one screw attaching the center air duct support bracket to the defroster nozzle and remove the center air duct (Fig. 55).
22. Remove two defroster nozzle attaching screws and remove the defroster nozzle (Fig. 56).
23. Remove four nuts retaining the evaporator housing assembly to the dash panel, and remove the assembly from the vehicle.

INSTALLATION

1. Position the evaporator housing assembly to the vehicle and install the four retaining nuts.
2. Position the defroster nozzle to the defroster opening and install the two attaching screws (Fig. 56).
3. Position the center air duct to the evaporator housing A/C duct. Install the stud fastener to retain the

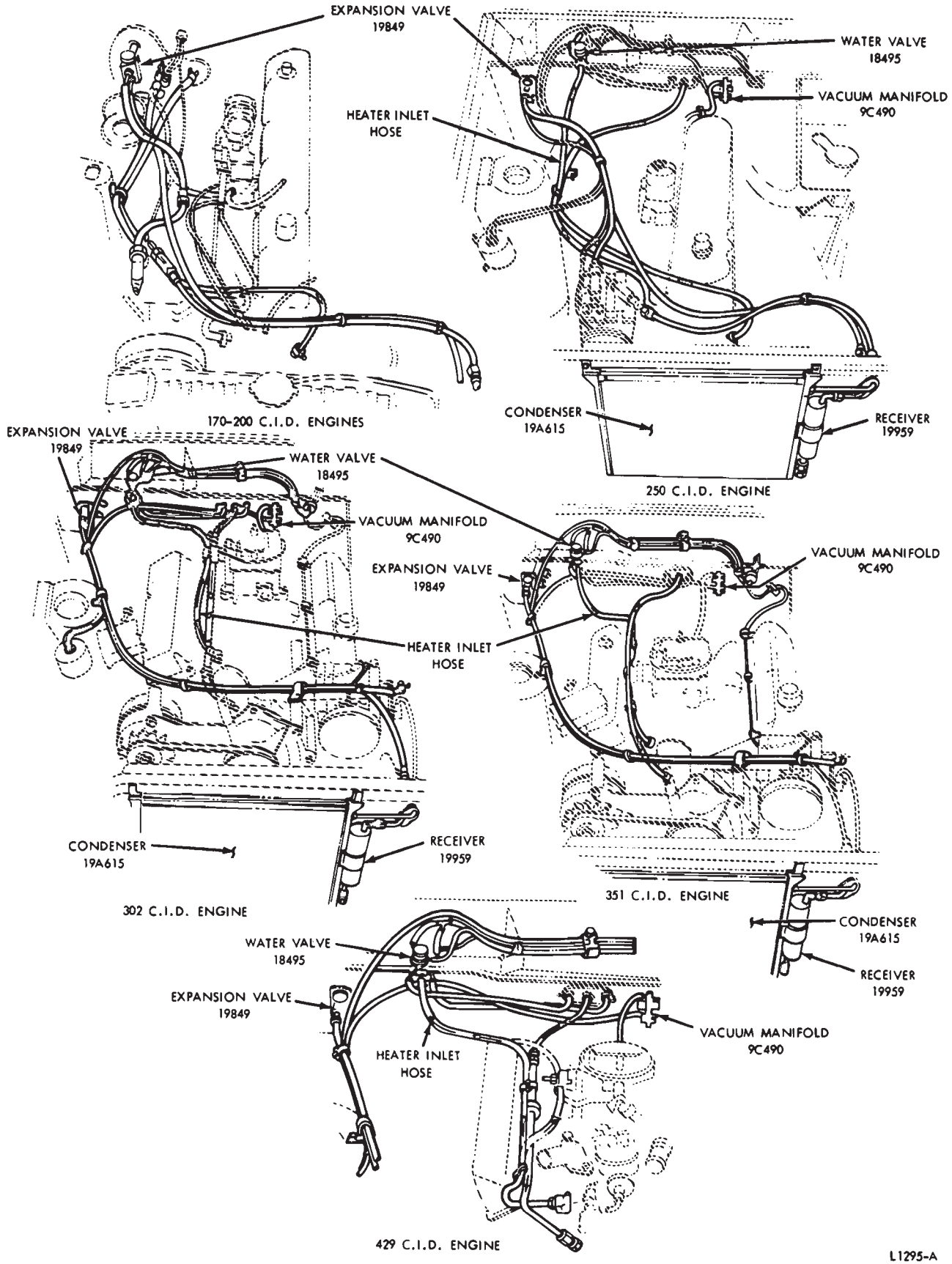


FIG. 53—Heater and Refrigerant Hose Routings—Falcon, Maverick, Fairlane and Montego

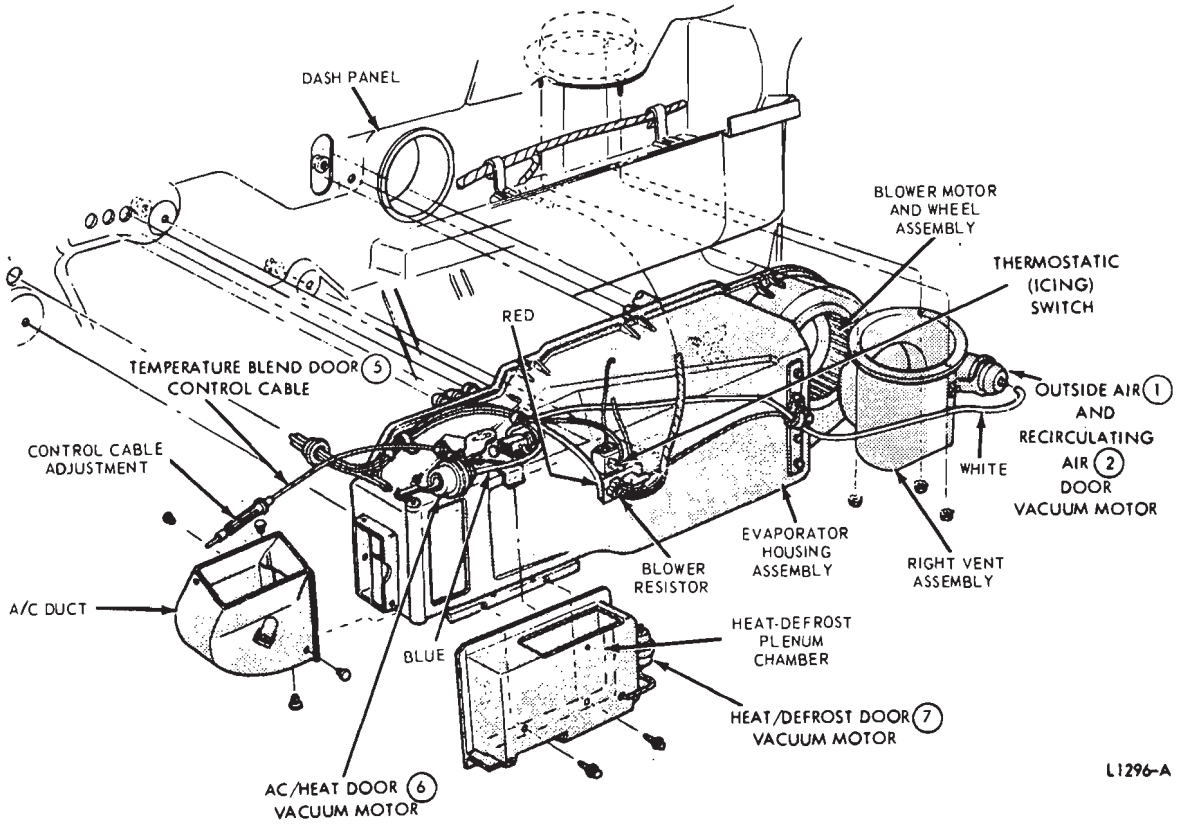


FIG. 54—Heater Air-Conditioner Installatian—Falcon, Fairlane, and Montego

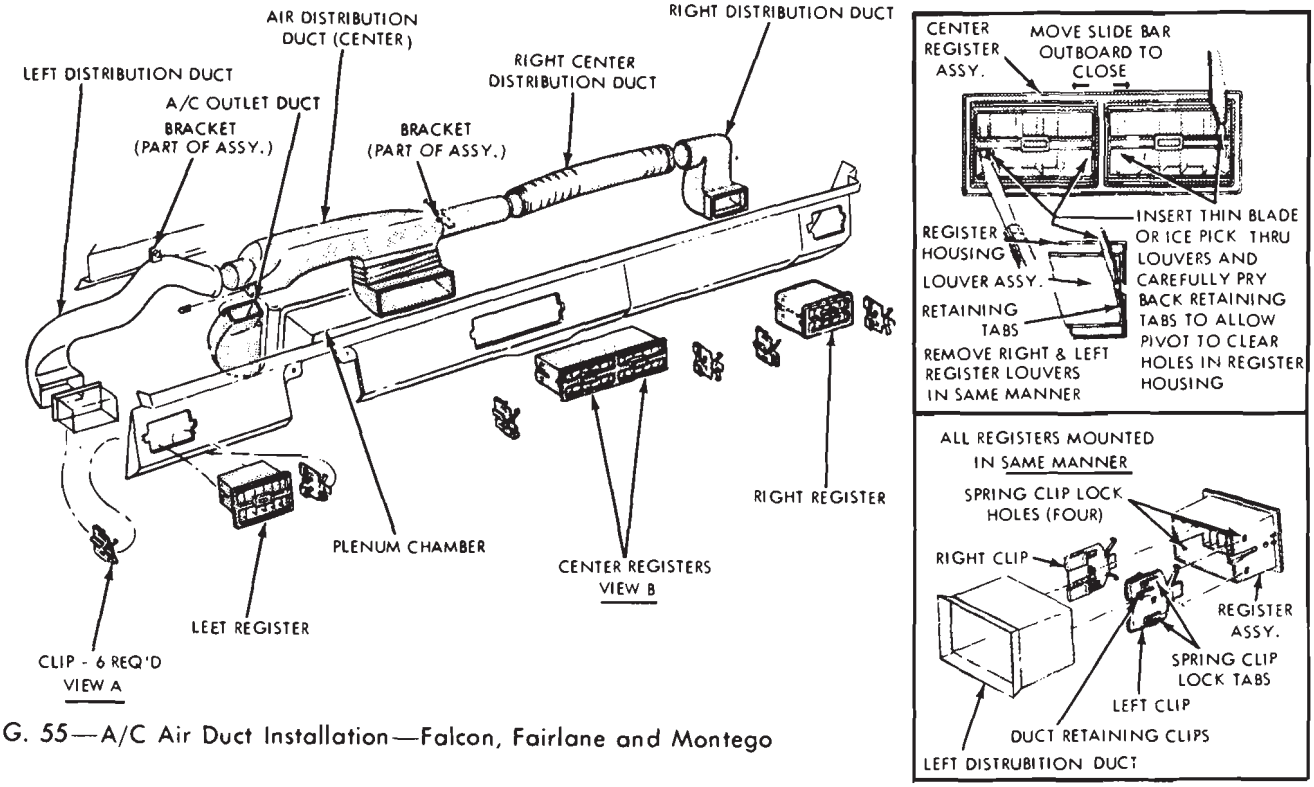


FIG. 55—A/C Air Duct Installation—Falcon, Fairlane and Montego

center duct to the A/C duct (Fig. 55).

4. Install the screw attaching the center air duct support bracket to the defroster nozzle (Fig. 55).

5. Connect the A/C air duct flexible hoses to the center air duct. Connect the right flexible hose to the register.

6. Connect the wires to the blower resistor and icing switch.

7. Connect the temperature blend door (5) control cable and the vacuum connector to the control assembly (Figs. 6, 7 and 8).

8. Position the right vent to the cowl top panel and install the three retaining nuts. Connect the white-stripe vacuum hose to the outside air (1) and recirculating air (2) door vacuum motor (Fig. 54).

9. Position the heat/defrost plenum chamber to the evaporator housing and install the two attaching screws (Fig. 54).

10. Connect the red-stripe vacuum hose to the heat/defrost door (7) vacuum motor.

11. Position the defroster nozzle assembly to the heat/defrost plenum chamber and install the snap-in clip (Fig. 59).

12. Position the drain hose and seal to the evaporator housing and install the hose clamp.

13. Insert the vacuum hose-wire harness through the hole in the dash panel and press the seal into the hole.

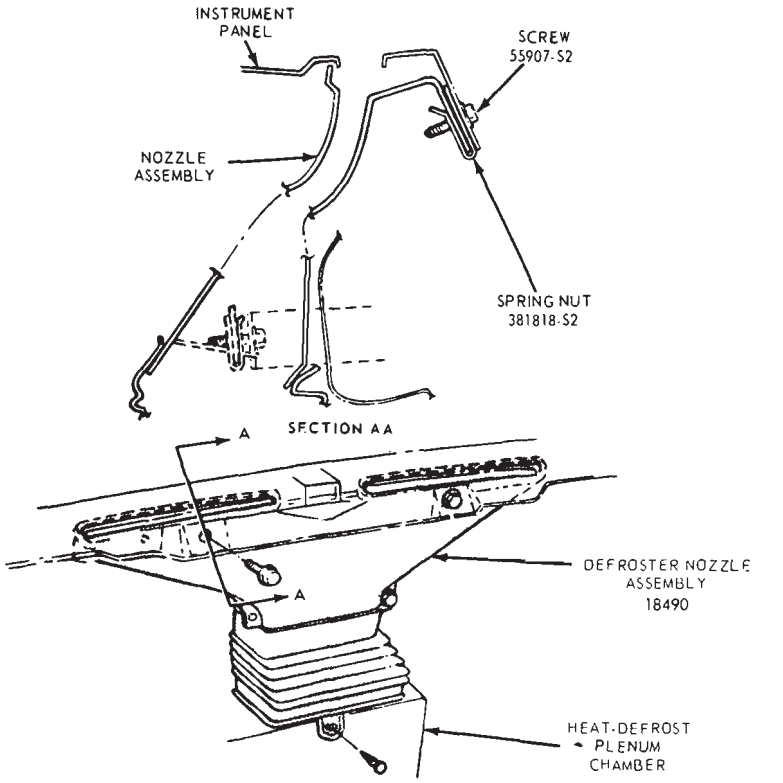


FIG. 56—Defroster Nozzle Installation—Falcon, Fairlane and Montego

14. Connect the vacuum hoses to the water valves. The yellow-stripe hose should be connected to the right water valve which is identified with a yellow dot. The blue-stripe hose should be connected to the left water valve which is identified with a blue dot.

15. Connect the black hose to the vacuum reservoir and the short hose

from the yellow-stripe hose to the clutch switch.

16. Connect the two clutch wires to the clutch vacuum switch (Fig. 53).

17. Connect the three heater hoses to the heater core at the dash panel as shown in Fig. 53).

18. Position the seal and retainer to the dash panel and evaporator refrigerant lines, and install the two attaching screws.

19. Connect the high and low pressure refrigerant lines at the expansion valve.

20. Fill the cooling system, connect the ground cable to the battery and install the carburetor air cleaner.

21. Leak test, evacuate, and charge the air conditioning system (NOTE SAFETY PRECAUTIONS).

HEATER-AIR CONDITIONER ASSEMBLY—MAVERICK

REMOVAL

1. Disconnect the battery ground cable and remove the air cleaner.
2. Drain the cooling system.
3. Connect a manifold gauge set to the compressor service valves and isolate the compressor. If the heater-air conditioner is being removed for repair to the refrigerant system, discharge the refrigerant system (NOTE SAFETY PRECAUTIONS).
4. Disconnect the high and low pressure hoses at the expansion valve.
5. Disconnect both heater hoses at the dash panel.
6. Disconnect the heater-A/C assembly retainer, retaining nuts, and seal at the dash panel.
7. Working inside the vehicle, disconnect the ignition switch from the package tray and position the switch out of the way.
8. Remove the 5 bolts retaining the package tray and remove the tray.
9. Disconnect the right and left air duct assembly from the heater-A/C assembly (Fig. 57).
10. Remove the right cowl trim panel and the package tray bracket.
11. Remove the radio assembly.
12. Remove the blower register retaining screw and remove the register.
13. Disconnect the temperature blend door (5) control at the heater-A/C assembly.
14. Remove the right duct assembly from the center register. Then, remove the center register retaining screws and remove the register.
15. Disconnect the expansion valve hose and the refrigerant hose from the evaporator core.
16. Disconnect the 4 vacuum hoses from the various vacuum motors.
17. Disconnect the resistor assembly and the thermostatic switch from the heater-A/C assembly.
18. Disconnect the blower ground wire from the brake support.
19. Remove the A/C drain tube.
20. Remove the heater-A/C assembly from the vehicle.

INSTALLATION

1. Position the heater-A/C assembly to the dash panel and install the retaining screw to the cowl.
2. From the engine compartment side, install the heater-A/C assembly retaining nuts. Then, install the seal and retainer to the dash panel.
3. Connect both heater hoses at the dash (Fig. 8).
4. Connect both the high and low pressure hoses to the expansion valve.
5. Connect the temperature blend door (5) control cable to the heater-A/C assembly.
6. Connect the vacuum lines to the various vacuum motors. Also, connect the expansion valve hose and the refrigerant hose at the evaporator case.
7. Connect the resistor assembly and thermostatic switch to the heater-A/C case. Then, install the blower ground wire to the brake pedal support.
8. Install the center register assembly.
9. Install the A/C drain tube.
10. Install the lower register assembly.
11. Install the right package tray bracket, then install the right cowl side trim panel.
12. Install both the left and right duct assemblies to the center register.
13. Install the package tray under the instrument panel. Also connect the ducts to the registers.
14. Install the ignition swtich to the package tray.
15. Install the radio assembly.
16. Install the air cleaner and connect the battery ground cable.
17. Leak test, evacuate and charge the system (NOTE SAFETY PRECAUTIONS) and connect the compressor back into the system.

HEATER AND REFRIGERANT HOSES

The heater-air conditioner hose routings are shown in Fig. 53.

EVAPORATOR CORE—FALCON, FAIRLANE, AND MONTEGO

1. Remove the evaporator housing from the vehicle and place it on a bench.
2. Remove the icing switch from the evaporator.
3. Remove 21 screws and 6 clips and separate the evaporator housing.
4. Disconnect the blower motor wire and remove the evaporator core.
5. Transfer the mounting bracket and rubber pad to the new evaporator core.
6. Install the evaporator core in the evaporator housing.
7. Connect the heater blower wire and assemble the evaporator housing.
8. Install the icing switch.
9. Install the evaporator housing in the vehicle.

HEATER CORE—FALCON, FAIRLANE, AND MONTEGO

1. Remove the heater air conditioner assembly and place it on a bench.
2. Remove 21 screws and 6 clips and separate the evaporator housing.
3. Slip the heater core out of the plenum.
4. Slip the new core with seal into the plenum.
5. Assemble the evaporator housing and install the 21 screws and 6 clips. Connect the wires at the resistor block, and install the seal and retainer at the evaporator tubes.
6. Install the heater-air conditioner assembly.

EXPANSION VALVE—FAIRLANE, FALCON, MAVERICK AND MONTEGO

REMOVAL

1. Discharge the refrigerant into the garage exhaust system if the refrigerant system still contains some refrigerant (NOTE SAFETY PRECAUTIONS).
2. Disconnect the (top) low pressure hose at the expansion valve (Fig. 54).
3. Disconnect the (lower) high pressure hose at the expansion valve.
4. Disconnect the refrigerant hoses from the evaporator core. Remove the expansion valve.

INSTALLATION

1. Position the expansion valve to the evaporator core. Loosely start both fittings, then tighten them.
2. Connect the two hoses at the expansion valve.
3. Leak test, evacuate, and charge the system (NOTE SAFETY PRECAUTION). Test the air conditioning system.

THERMOSTATIC (ICING) SWITCH—FALCON, FAIRLANE AND MONTEGO

REMOVAL

1. Remove the heater and air conditioner assembly from the vehicle.
2. Remove the two thermostatic switch attaching plastic retainers.
3. Pull the switch sensing tube from the evaporator core.

INSTALLATION

1. Insert the sensing tube into the evaporator core fins.
2. Position the thermostatic switch to the evaporator housing and install the two attaching retainers.
3. Install the heater and air conditioner assembly in the vehicle.

BLOWER MOTOR—MAVERICK

To remove the blower motor, remove the radio assembly. Then, disconnect the ignition switch from the package tray. Remove the package tray and disconnect the left and right duct assemblies. Remove the register from the blower housing. Then, remove the lower nut retaining the blower housing to the evaporator assembly. Rotate the blower housing until it disengages from the evaporator housing, and disconnect the vacuum hoses at the motor on the blower housing. Disconnect the resistor assembly (Fig. 57) and the blower ground wire and remove the blower.

THERMOSTATIC (ICING) SWITCH—MAVERICK

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the instrument cluster (Group 33).
3. Remove the ash receptacle.
4. Remove the left duct assembly and remove the center register. Then remove the right duct assembly.
5. Disconnect the vacuum hose from the heat/defrost door (7) at the plenum. Push the plenum assembly to the left to gain access to the thermostatic (icing) switch.
6. Disconnect teh 2 connectors at the switch and remove the two screws retaining the switch to the top of the evaporator (Fig. 57).
7. Working through the center grille opening and between the package tray and the instrument panel, remove the thermostatic (icing) switch and pull the sensing tube out of the core fins.

INSTALLATION

1. Feed the sensing tube into the core fins. Position the thermostatic (icing) switch to the evaporator and install the 2 retaining screws.
Connect the 2 connectors.
2. Correctly position the plenum and connect the right duct assembly. Connect the heat/defrost door (7) vacuum hose to the plenum.
3. Install the center register assembly and install the left air duct.
4. Install the ash receptacle assembly.
5. Install the cluster assembly.
6. Connect the battery ground cable.

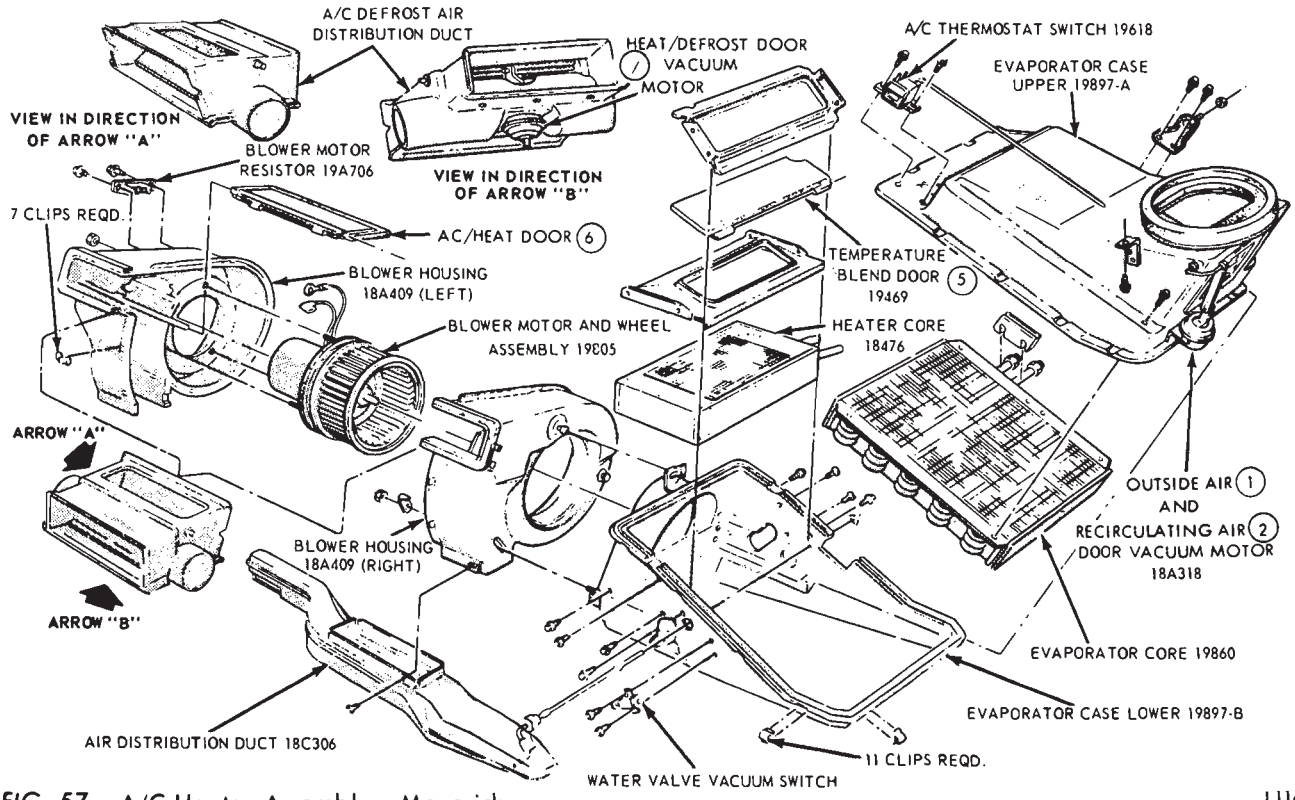


FIG. 57—A/C-Heater Assembly—Maverick

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CLUTCH SWITCH—MAVERICK

Remove the instrument cluster assembly (Group 33), from the vehicle. Working through the cluster opening, disconnect the clutch switch connectors and remove the 2 nuts retaining the clutch switch to the control assembly and remove the switch (Fig. 58).

AC/HEAT DOOR (6) VACUUM MOTOR—MAVERICK

To remove the motor, first disconnect the battery ground cable. Remove the radio assembly. Disconnect the 2 vacuum hoses from the vacuum motor, and remove the hose retaining clip. Remove the two nuts retaining the motor to the mounting bracket and remove the motor (Fig. 11).

RECIRCULATING AIR DOOR (2) VACUUM MOTOR—MAVERICK

To remove the recirculating door vacuum motor, remove the 2 nuts retaining the right air register to the instrument panel package tray. Then remove the inboard bolt from the right instrument panel bracket and remove the register assembly. Mark the position of the motor arm and remove the screw connecting the arm to the motor (Fig. 11). Disconnect the vacuum hose from the motor, then remove the 2 screws securing the motor to the bracket and remove the motor.

HEAT/DEFROST DOOR (7) VACUUM MOTOR—MAVERICK

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the radio assembly.
3. Remove the 2 screws retaining the center register assembly to the instrument panel and remove the register.
4. Remove the ash receptacle.
5. Disconnect the left and right duct assemblies from the center register.
6. Disconnect the ignition switch from the package tray. Then, remove the package tray by removing the 5 retaining bolts.
7. Disconnect the left and right air ducts from the outside registers.
8. Disconnect the vacuum hose from the blower housing.
9. Remove the register assembly from the blower housing.
10. Remove the lower nut retaining the blower motor to the evaporator housing. Rotate the blower motor to disengage it from the evaporator. Lower the blower motor to the floor.
11. Remove the heat/defrost air distribution duct. Then, remove the retaining clip and open the door in the duct (Fig. 58).
12. Remove the 2 nuts retaining the vacuum motor to the duct and remove the motor.

INSTALLATION

1. Position the vacuum motor on the duct and install the four retaining nuts and clip.
2. Position the duct under the instrument panel, then position the blower motor on the duct. Rotate the blower motor to lock it in place on the evaporator housing. Install the lower retaining nut.
3. Connect the vacuum hoses to the blower motor housing and to the heat/defrost door (7) vacuum motor.
4. Install the center register assembly.
5. Connect the left and right air ducts to the center register assembly.
6. Install the ash receptacle.
7. Install the register on the blower assembly.
8. Install the package tray and connect the ducts to the registers at

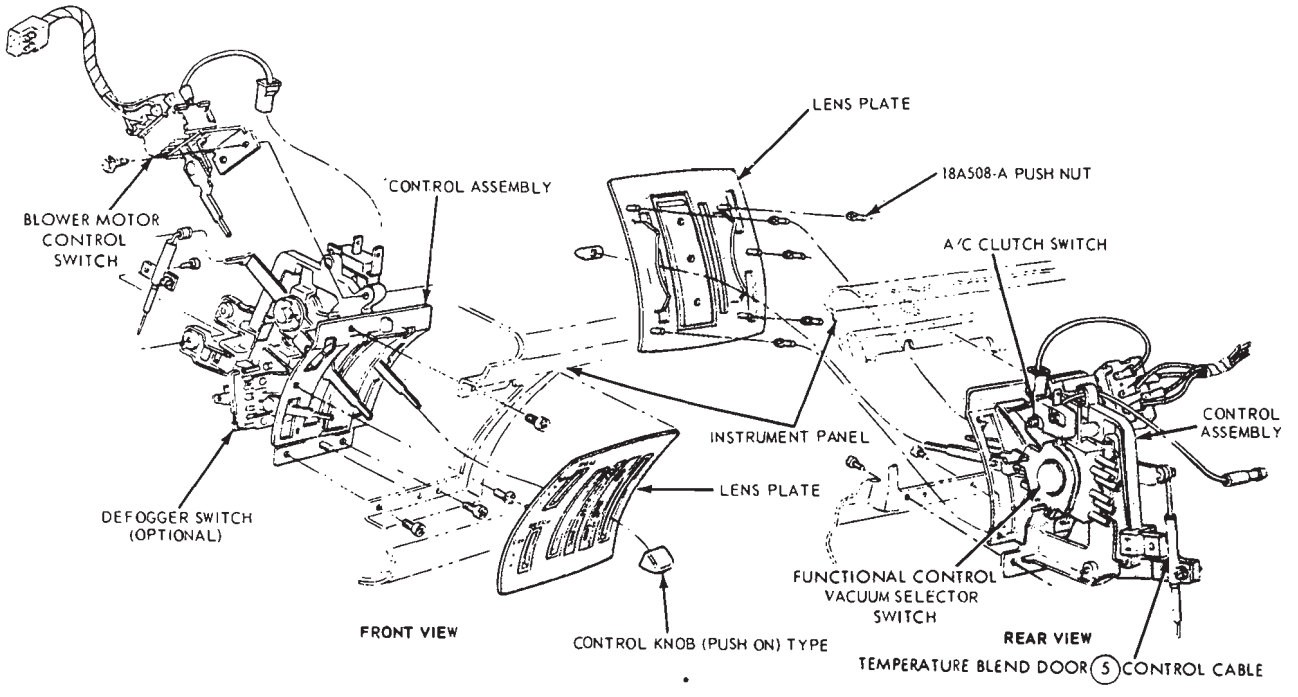

FIG. 58—A/C-Heater Control Assembly—Maverick

the ends of the instrument panel.

9. Install the ignition switch to package tray.

10. Install the radio assembly.

11. Connect the battery ground cable.

BLOWER SWITCH—MAVERICK

Access for blower switch removal is obtained by following the control assembly removal procedure in this part.

BLOWER MOTOR SWITCH—FALCON, FAIRLANE AND MONTEGO

1. Remove the instrument panel pad (Group 47).
2. Remove the switch knob and the switch retaining screws or nuts.
3. Disconnect the switch and remove it.
4. Position the new switch to the instrument panel, connect the wires to the switch and install it.
5. Install the instrumemt panel pad (Group 47), and install the switch knob.

BLOWER MOTOR-FALCON, FAIRLANE AND MONTEGO

1. Remove the glove box.
2. Remove three nuts and remove the right fresh air duct. Disconnect the vacuum line from the actuator and position it out of the way.
3. Disconnect the wire plug from the resistor.
4. Remove three screws and remove the blower motor cover. Remove three nuts and remove the motor and blower wheel.
5. Install the motor and wheel and ground wire in the heater case. Install the blower cover.
6. Connect the wire to the resistor on the plenum. Check the blower operation.
7. Install the fresh air duct.
8. Install the glove box.

BLOWER RESISTOR

Refer to the blower resistor procedure in Part 34-03.

AC/HEAT DOOR (6) VACUUM MOTOR—FALCON, FAIRLANE AND MONTEGO

1. Remove the instrument panel pad (Group 47).
2. Disconnect the left and right A/C ducts from the center air distribution duct and remove the duct.
3. Remove the defroster nozzle.
4. Remove the two vacuum motor retaining screws, the vacuum motor to AC/heat door (6) push nut, the vacuum hose, and remove the vacuum motor.
5. Position the vacuum motor and install the mounting screws and the vacuum motor-to-AC/heat door (6) push nut.
6. Connect the vacuum hose to the vacuum motor.
7. Install the defroster nozzle.
8. Install the center air distribution duct, and connect the right and left A/C ducts.
9. install the instrument panel pad (Group 47).

HEAT/DEFROST DOOR (7) VACUUM MOTOR—FALCON, FAIRLANE AND MONTEGO

The heat/defrost door (7) vacuum motor may be replaced after first removing the defroster plenum from the heater assembly.

After installing the vacuum motor, check its operation for full travel of the heat/defrost door (7).

HEATER AIR-CONDITIONER CONTROL ASSEMBLY—FALCON

REMOVAL

1. Remove the three knobs from the control assembly.
2. Remove the instrument panel pad (Group 47).
3. Remove four nuts retaining the control to the back side of the instrument panel (Fig. 7).
4. Disconnect the light and blower switch wires, control cable, and vacuum hoses, and remove the control assembly and blower switch from the vehicle.

INSTALLATION

1. Connect the wires, control cable, and vacuum hoses to the control assembly and blower switch.
2. Position the control assembly and blower switch to the instrument panel and install the retaining nuts (Fig. 7).
3. Install the instrument panel pad (Group 47).
4. Install the control assembly knobs.

A/C-HEATER CONTROL ASSEMBLY—MAVERICK

To remove the control assembly, remove the instrument cluster (Group 15). Pull the knobs off the control levers, blower switch and defogger switch (Fig. 58). Carefully remove the face plate by prying it off at the top and bottom alternately. If this is not done, the mounting pins may be broken. Pry off the lens plate from the control assembly, then remove the screws retaining the control assembly to the instrument panel. Move the control assembly out through the cluster opening and disconnect all switches and cables. Remove the assembly.

When installing the control assembly, be sure to adjust the control cables. When installing the face plate, position all of the levers between the top of their slots and mid position. Position the plate so that the five pins line up with the elongated holes in the casting. Press evenly on the plate top, center and bottom until all five pins are fully engaged.

HEATER AIR-CONDITIONER CONTROL ASSEMBLY—FAIRLANE

REMOVAL

1. Remove the instrument panel pad (Group 47).
2. Remove the three knobs from the control assembly.
3. Separate the two plastic clips retaining the main wiring harness to the control assembly and move the wiring away from the control assembly.
4. Remove three control assembly to instrument panel attaching screws.
5. Disconnect the control cable and vacuum hoses from the control assembly (Fig. 8). Remove the control assembly from the vehicle.

INSTALLATION

1. Connect the vacuum hoses and control cable to the control assembly (Fig. 8).
2. Position the control assembly to the instrument panel and install the attaching screws.
3. Position the wiring harness to the control assembly and install the two clips.
4. Install the knobs on the control assembly.
5. Install the instrument panel pad (Group 47).

HEATER AIR-CONDITIONER CONTROL ASSEMBLY—MONTEGO

REMOVAL

1. Remove the knobs from the control assembly.
2. Remove the instrument panel pad (Group 47).
3. Remove three nuts retaining the control to the back side of the instrument panel (Fig. 6).
4. Remove two screws attaching the blower switch to the back side of the instrument panel (Fig. 6).
5. Disconnect the control cable, blower switch wires, and the vacuum hoses. Then, remove the control assembly and blower switch from the vehicle.

INSTALLATION

1. Connect the vacuum hoses, control cable, and blower switch wires to the control assembly and blower switch.
2. Position the control assembly and blower switch to the instrument panel, and install the attaching screws and retaining nuts (Fig. 6).
3. Install the instrument panel pad (Group 18).
4. Install the control assembly knobs.

HEATER AIR-CONDITIONER TEMPERATURE BLEND DOOR (5) CONTROL CABLE—FALCON, FAIRLANE, AND MONTEGO

1. Remove the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. On Montego only, remove the instrument cluster retaining screws and position the cluster out.
4. On units with air conditioning, disconnect the left and right A/C ducts from the center air distribution duct. Remove the defroster nozzle mounting screws and clip and remove the defroster nozzle.
5. Disconnect the cable(s) at both ends and remove the cable.
6. Connect the cable(s) to the control. Connect and adjust the heat/defrost door (7) and temperature blend door (5) control cables at the heater.
7. On units with air conditioning, connect the temperature blend door (5) control cable and/or heat control cable on the evaporator. Adjust the cable at the turnbuckle.
8. On Montego only, position the cluster to the instrument panel and install the mounting screws.
9. On units with air conditioning, install the defroster nozzle and the center air distribution duct. Connect the right and left A/C ducts.
10. Install the instrument panel pad (Group 18).
11. Connect the battery ground cable.

CONDENSER—FALCON, MAVERICK

1. Discharge the system, and remove both grille upper supports.
2. Remove the hood latch and support assembly.
3. Disconnect the evaporator-to-condenser hose at the receiver tank.
4. Disconnect the compressor-to-condenser hose at the condenser, and remove the clip holding the hoses together at the radiator support.
5. Remove the bolts attaching the condenser to the radiator front support, and remove the condenser.
6. Transfer the receiver tank to the new condenser.
7. Position the condenser to the radiator support, and install the attaching bolts.
8. Connect the evaporator-to-receiver tank hose, and connect the compressor-to-condenser hose.
9. Install the hood latch and support, and install both grille upper supports.
10. Install the clip holding the hoses together at the radiator support.
11. Leak test, evacuate and charge the system.

CONDENSER—FAIRLANE AND MONTEGO

1. Discharge the A/C system a d remove the hood latch and support assembly.
2. Loosen the clamp holding the hoses together at the radiator support.
3. Disconnect the evaporator-to-condenser hose at the receiver tank.
4. Disconnect the compressor-to-condenser hose at the condenser.
5. Remove the bolts attaching the condenser and radiator to the radiator support.
6. Lift the condenser from the vehicle.
7. Transfer the receiver tank to the new condenser.
8. Position the condenser and radiator to the radiator support, and install the attaching bolts.
9. Connect the evaporator-to-receiver tank hose, and connect the compressor-to-condenser hose.
10. Tighten the hose clamp retaining screw, and install the hood latch and support assembly.
11. Leak test, evacuate, and charge the system.

RECEIVER-DEHYDRATOR TANK—FALCON, FAIRLANE AND MONTEGO

Remove the condenser-receiver assembly (in this section). Assemble the new receiver to the condenser and install the condenser-receiver assembly (in this section).

7 LINCOLN CONTINENTAL REMOVAL AND INSTALLATION

Before attempting to remove any part of the air conditioning system that may expose an open refrigerant line, make certain that the system is completely exhausted of refrigerant.

Carefully note the safety precautions under Testing in this part.

EVAPORATOR CORE

REMOVAL

1. Drain the engine coolant.
2. Discharge the refrigerant system.
3. Disconnect the suction throttling valve from the suction tube, evaporator outlet tube and liquid bleed line. (Fig. 59, View D).
4. Disconnect the expansion valve equalizer line from the suction throt-

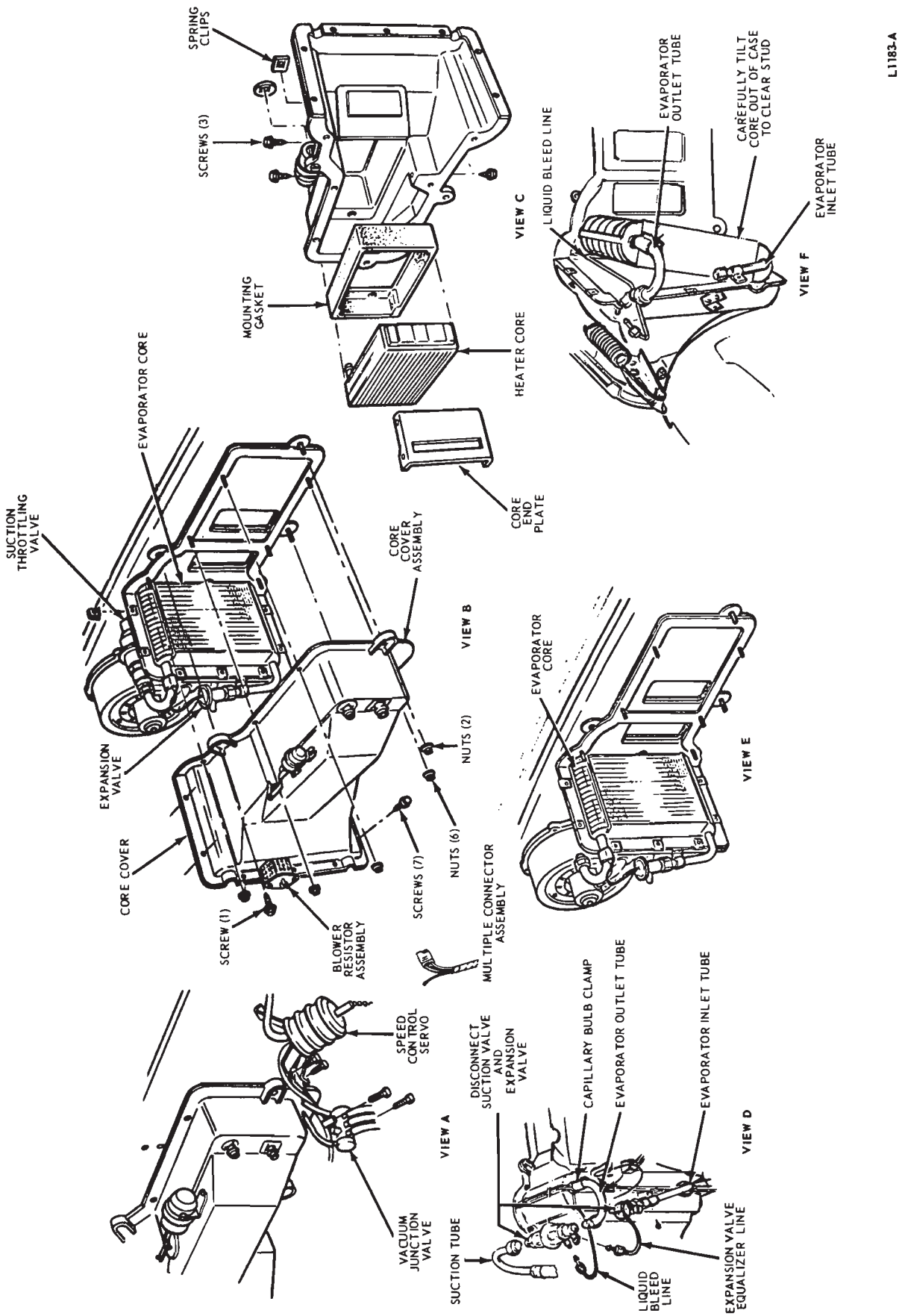

FIG. 59—Manual A/C-Heater System Evaporator and Heater Core Removal—Lincoln Continental

tling valve.

5. Unwrap the expansion valve capillary bulb and remove the clamp.

6. Disconnect the expansion valve from the evaporator core inlet tube (bottom).

7. Remove the multiple connector from the blower resistor.

8. Disconnect the vacuum junction valve from the dash panel and move the valve and vacuum hoses away from the case. (Fig. 59, View A).

9. Disconnect the speed control servo and bracket assembly from the dash panel (on vehicles so equipped) and move it away from the case.

10. Disconnect the heater hoses from the heater core, and the hose support bracket from the case. Move the hoses and water valve away from the heater case.

11. Disconnect the vacuum hose (tan) from the Restrictor Air Door (3) vacuum motor.

12. Remove seven case cover-to-case flange attaching screws.

13. Remove six case cover-to-back plate stud nuts.

14. Remove one upper case-to-dash panel mounting screw from the case.

15. Remove two case-to-dash panel mounting stud nuts; one on the inboard mounting flange and one below the case on the lower flange.

16. Carefully move the heater core cover assembly forward to clear the mounting studs and lift it up and out of the vehicle.

17. Tilt the evaporator core inboard and pull the core upward slowly to clear the studs. (Fig. 59, View E and F).

INSTALLATION

1. Position the evaporator core in the case assembly (Fig. 59). **Make sure the evaporator core liquid bleed line is positioned properly in the detent in the evaporator case back plate and that the core is not damaged on the back plate stud during installation.**

2. Carefully position the heater core cover assembly on the mounting studs.

3. Install the two case-to-dash panel mounting stud nuts; one on the inboard mounting flange and one below the case on the lower flange.

4. Install the one upper case-to-dash panel mounting screw.

5. Install the six case cover-to-back plate stud nuts.

6. Install the seven case cover-to-case flange attaching screws.

7. Connect the vacuum hose (tan) to the restrictor air door (3) vacuum motor.

8. Install the heater hoses on the heater core tubes and install the hose support bracket.

9. Position the speed control servo and bracket assembly (on vehicles so equipped) on the dash panel and install the two mounting screws.

10. Position the vacuum junction valve on the dash panel and install the two mounting screws.

11. Connect the multiple connector to the blower resistor.

12. Connect the expansion valve to the evaporator core outlet tube.

13. Position the expansion valve capillary bulb on the evaporator outlet tube (top) close to the evaporator case. Install the capillary bulb clamp and then wrap the bulb and clamp with asbestos insulating wrap. Press the edges of the wrap around the outlet tube with the fingers to make a tight seal and prevent outside air from affecting the bulb.

14. Connect the expansion valve equalizer line to the suction throttling valve.

15. Connect the suction tube, evaporator outlet tube and the liquid bleed line to the suction throttling valve (Figs. 63 and 59).

16. Fill the engine cooling system with coolant, start the engine and check for heater system leaks.

17. Evacuate and charge the refrigerant system.

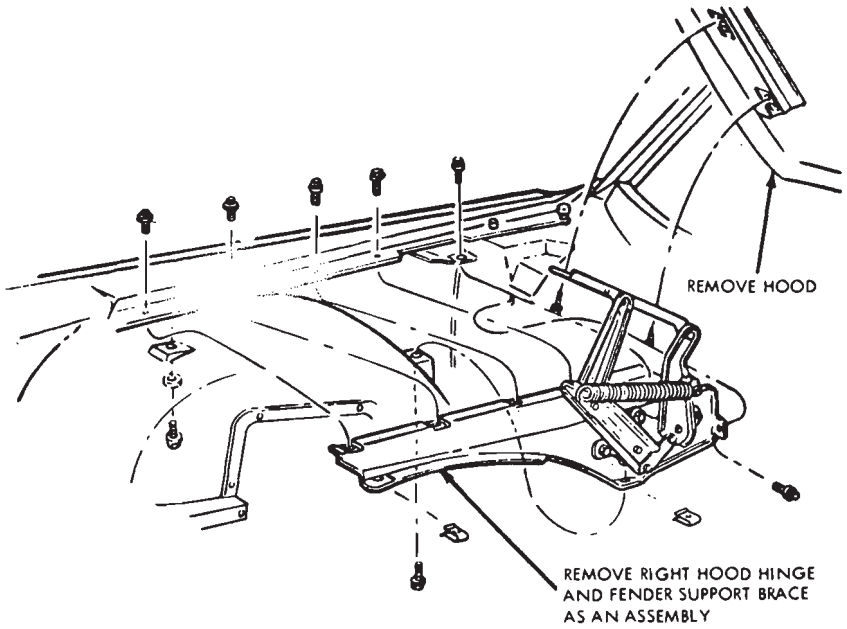

FIG. 60—Hood Hinge Removal—Lincoln Continental

EVAPORATOR CASE ASSEMBLY

REMOVAL

1. Drain the engine coolant.

2. Discharge the refrigerant system.

3. Remove the hood (Group 43).

4. Remove the right hood hinge and right front fender inner support brace as an assembly (Fig. 60).

5. Disconnect the suction throttling valve from the suction tube (Fig. 59, View D).

6. Disconnect the liquid line at the fitting near the sight glass.

7. Remove the multiple connector from the blower resistor and the harness from the clamp on the case.

8. Disconnect the blower motor ground wire from the dash panel and the lead wire from the harness (Fig. 62).

9. Disconnect the vacuum junction valve from the dash panel and move the valve and vacuum hoses away from the case.

10. Disconnect the speed control servo and bracket assembly from the

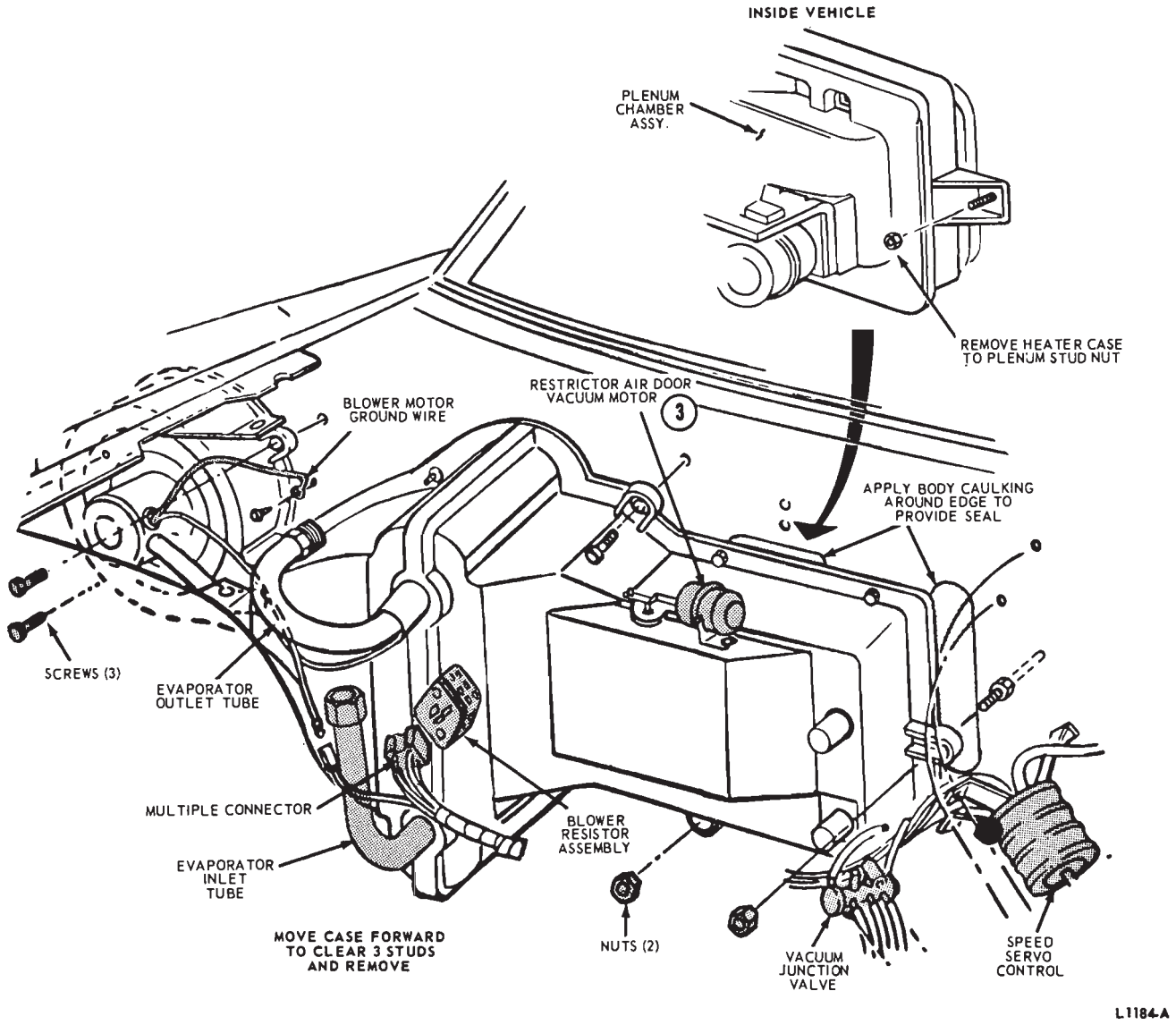

FIG. 61—Manual A/C-Heater System Evaporator Case Removal—Lincoln Continental

dash panel (on vehicles so equipped), and move them away from the case (Fig. 61).

11. Disconnect the heater hoses from the heater core and the hose support bracket from the front of the case. Move the hoses and water valve away from the case.

12. Disconnect the vacuum hose (tan) from the Restrictor Air Door (3) vacuum motor.

13. Remove one case mounting stud nut under the instrument panel on the right side of the plenum chamber mounting flange (Fig. 61).

14. Remove three case-to-dash panel mounting screws and two stud mounting nuts.

15. Move the case assembly forward to clear three studs, lift the case upward to clear the engine and inboard to clear the fender and apron.

INSTALLATION

1. To provide a positive seal between the case and dash panel and insure against air and/or water leaks, apply body caulking around the edge of the dash panel openings before installing the evaporator case assembly (Fig. 61).

2. Carefully place the evaporator case assembly over the dash panel openings and on the two mounting studs. **Make certain that the mounting stud on the evaporator case aligns properly with the hole in the dash panel.**

3. Install the three evaporator case-to-dash panel mounting screws and two mounting stud nuts.

4. Install the one case mounting stud nut under the instrument panel on the right side of the plenum chamber mounting flange.

5. Plug the wire harness multiple connector onto the blower resistor and insert the harness into the clip on the case.

6. Connect the blower motor ground wire to the dash panel and the lead wire to the harness (Fig. 61).

7. Connect the vacuum hose (tan) to the Restrictor Air Door (3) vacuum motor.

8. Connect the heater hoses (Fig. 10) to the heater core tubes and secure the hoses and hose support clamp to the core cover with the retaining bolt. Position and secure the heater hose clamps at the heater core tubes.

9. Position the speed control servo and bracket assembly (if so equipped) on the dash panel and secure it with the two dash panel mounting screws (Fig. 61).

10. Position the vacuum junction valve on the dash panel and secure it with the two dash panel mounting screws.

11. Connect the liquid line at the fitting near the sight glass.

12. Connect the suction throttling valve to the suction tube.

13. Install the right hood hinge and front fender inner support brace assembly (Fig. 60).

14. Install the hood (Group 43).

15. Fill the system with coolant, start the engine and test the heater system for coolant leaks.

16. Evacuate and charge the refrigerant system.

DEFROSTER NOZZLES

Refer to Standard Heating System, Removal and Installation, Group 34-03.

CONTROL ASSEMBLY

Refer to Standard Heater System, Removal and Installation, Group 34-03, (Fig. 28).

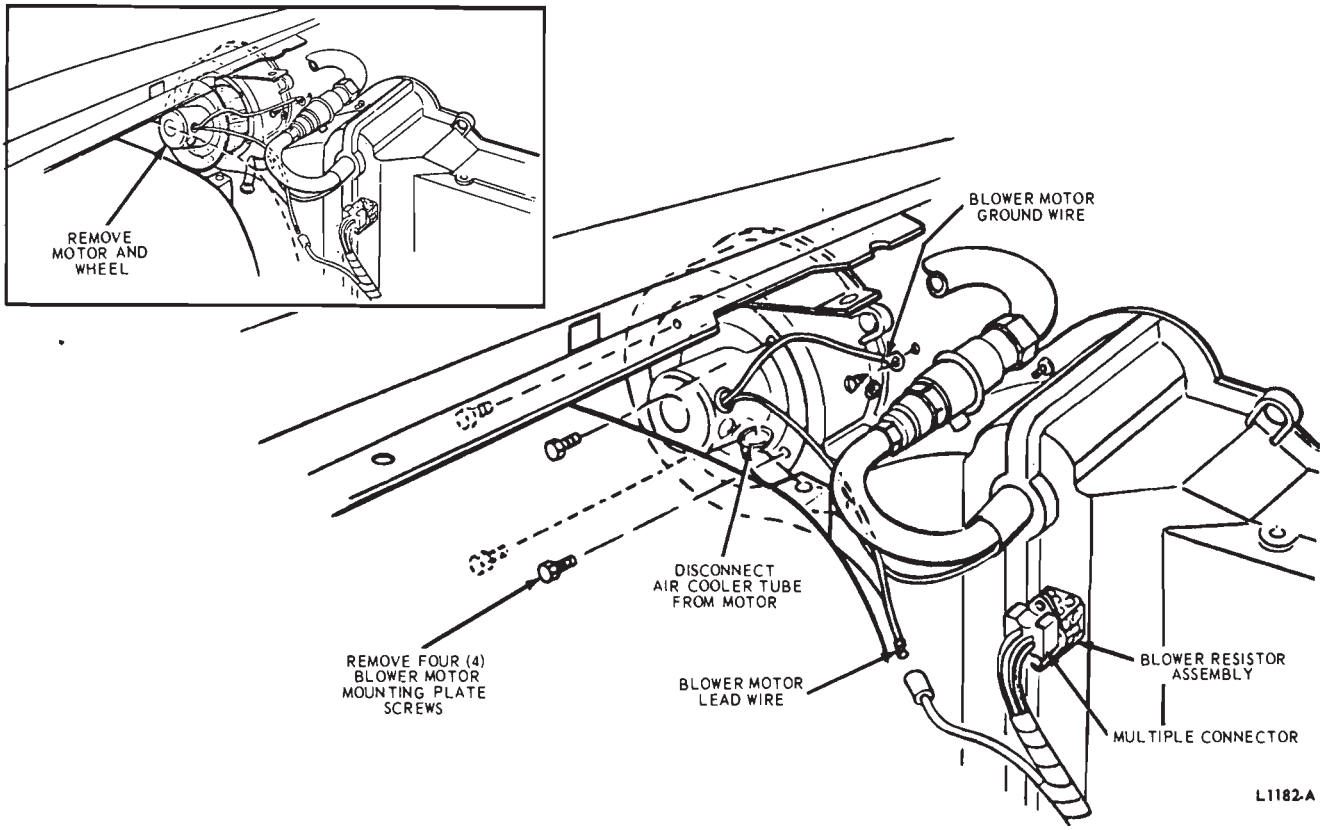

FIG. 62—Manual A/C-Heater System Blower Motor Removal—Lincoln Continental

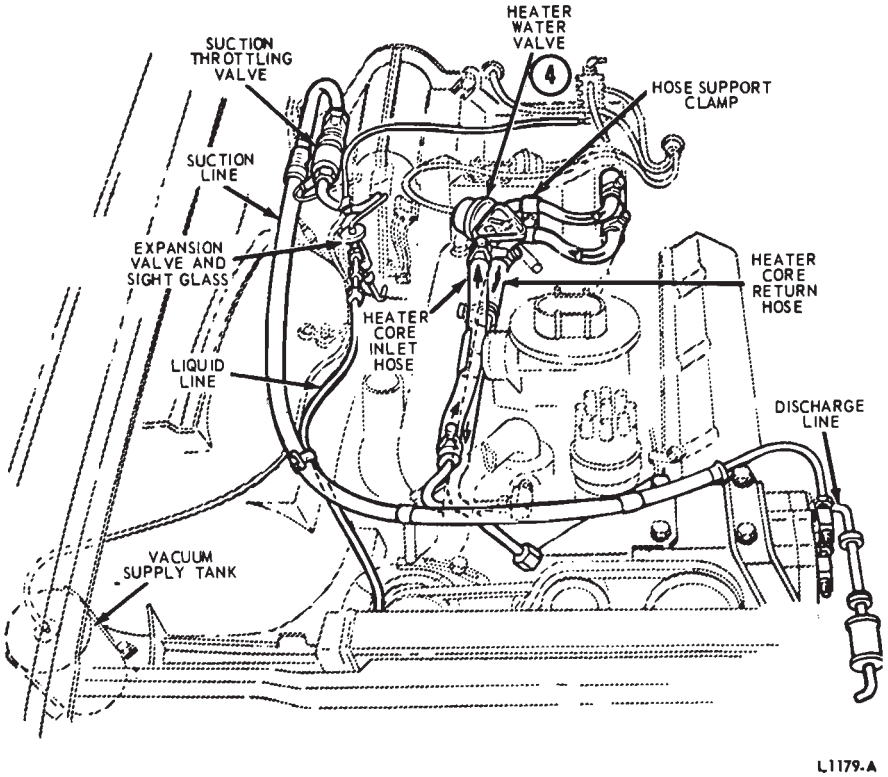

FIG. 63—Manual A/C-Heater Hose Routing—Lincoln Continental

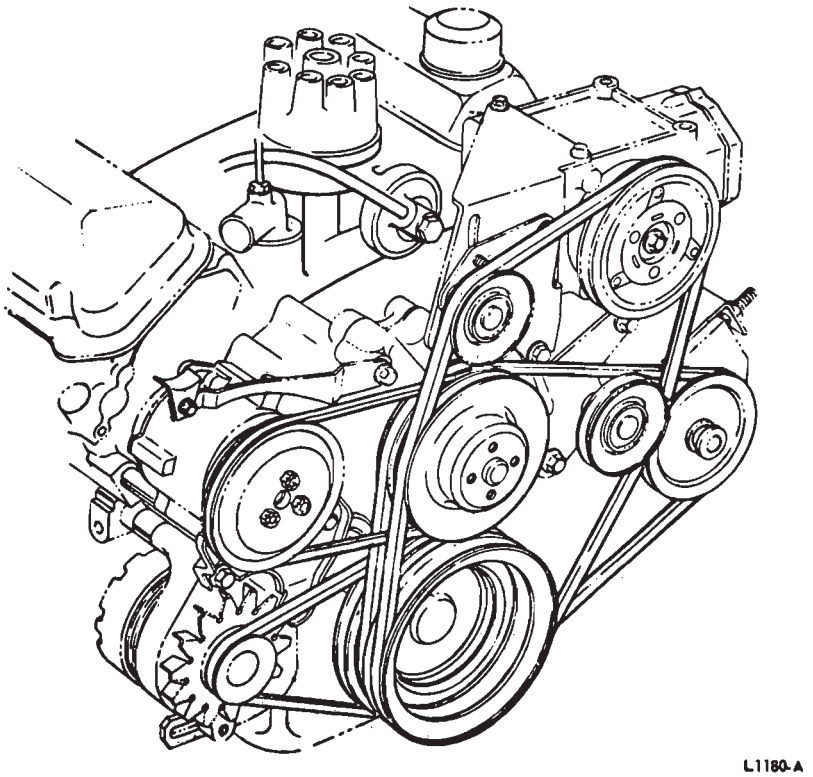

FIG. 64—Manual A/C-Heater Compressor Belt Arrangement—Lincoln Continental

AIR DISTRIBUTION DUCTS AND PLENUM CHAMBER

Refer to Standard Heating System, Removal and Installation, Group 34-03.

REGISTERS

Refer to Standard Heating System, Removal and Installation, Group 34-03.

BLOWER MOTOR AND WHEEL ASSEMBLY

Refer to Standard Heating System, Removal and Installation, Group 34-03 and Fig. 62.

HEATER CORE

Refer to Standard Heating System, Removal and Installation, Group 34-03 and Fig. 59.

When installation is completed, connect the vacuum hose (tan) to the Restrictor Air Door (3) vacuum motor.

A/C-HEATER HOSE ROUTING

The refrigerant and heater hose routings are shown in Fig. 63.

A/C-HEATER COMPRESSOR BELT ARRANGEMENT

The compressor belt arrangement is shown in Fig. 64.

EXPANSION VALVE

1. Remove the insulation at the expansion valve.
2. Remove the high pressure hose at the expansion valve.
3. Pull the bulb from the clamp.
4. Remove the expansion valve from the core.
5. Install a new expansion valve to the core.
6. Position the sensing bulb in the clamp. **Be sure that both the sensing bulb and clamp are clean.**
7. Connect the high pressure hose to the expansion valve.
8. Test the connections for leaks; then, install the insulation.

VALVE OR PLUG—DEHYDRATOR RECEIVER TANK

1. Remove the lower shield between the radiator and grille secured by five bolts.

2. Remove the valve or plug from the bottom of the receiver tank.
3. Install the new valve or plug.
4. Install the lower shield securing it with five bolts.
5. After installing the plug, the system must be leak tested and recharged.

TEMPERATURE BLEND DOOR (5) VACUUM MOTOR

REMOVAL

1. Open the hood and disconnect the negative battery cable.
2. Disconnect the vacuum motor operating arm from the temperature blend door (5) shaft.
3. Disconnect the vacuum line.
4. Remove the two screws holding the vacuum motor to the heater case, and remove the vacuum motor.

INSTALLATION

1. Position the vacuum motor to the heater case and install the retaining screws.
2. Connect the vacuum line to the vacuum motor.
3. Connect the vacuum motor arm to the temperature blend door (5) shaft. The vacuum motor operating arm calibration must be set. See calibration (Section 3).

AC/HEAT AIR DOOR (6) VACUUM MOTOR

1. Disconnect the battery.
2. Remove the lower instrument panel cover secured by four screws.
3. Remove the glove box.
4. Disconnect the defroster hose located in front of the motor.
5. Remove the clip from the arm. Remove two nuts retaining the vacuum motor to the right side of the plenum chamber. Disconnect the vacuum hose and remove the vacuum motor.
6. Position the new vacuum motor and connect the vacuum hose. Position the vacuum motor to the plenum chamber and install two retaining nuts and clip.
7. Connect the defroster hose.
8. Install the glove box.
9. Install the lower instrument panel cover.
10. Check the vacuum motor operation and connect the battery.

HEAT/DEFROST DOOR (7) VACUUM MOTOR

1. Disconnect the battery ground cable.
2. Remove the lower instrument panel cover secured by four screws.
3. Remove the clip from the vacuum motor arm and remove two retaining nuts. Disconnect the vacuum hose and remove the vacuum motor.
4. Position the new vacuum motor to the left side of the plenum chamber and secure it with two retaining nuts. Install the clip and connect the hose.
5. Check the vacuum motor operation and connect the battery.

BLOWER RESISTOR

REMOVAL

1. Open the hood and disconnect the negative battery cable.
2. Remove the wiring harness.
3. Unscrew the two screws holding the resistor assembly to the heater case.

INSTALLATION

1. Position the resistor to the heater case and install the two retaining screws.

On installation, be sure that no resistor coil touches any adjacent coil.

2. Connect the wiring harness to the resistor.
3. Connect the battery cable and close the hood.

8 THUNDERBIRD AND CONTINENTAL MARK III REMOVAL AND INSTALLATION

MINOR COMPONENTS

For removal and installation procedures of minor heater components refer to Part 34-03 Section 7.

OUTSIDE AIR DOOR MOTOR

The outside air door motor is located in the right cowl area. To gain access to the motor for removal, disconnect the battery ground cable, remove the right cowl trim panel and remove the right cowl air deflector (5 screws). The motor is held in place by two nuts. The motor arm is attached to the air door with a clip.

EXPANSION VALVE AND SIGHT GLASS

The expansion valve and sight glass assembly is located immediately outside the evaporator case in the engine compartment.

EVAPORATOR CASE

The blower motor and evaporator case assembly is located on the engine side of the dash panel to the right of the centerline. The blower motor and wheel is located in the right side of the case under the right front fender.

The evaporator and heater cores are separated in the case by a restrictor air door (3) and are serviced by removing the evaporator case front cover and heater core cover assemblies.

PLENUM CHAMBER

The plenum chamber and air distribution ducts are located under the instrument panel. Two rectangular openings in the dash panel allow air to flow from the evaporator case into the plenum chamber. It is necessary to remove the instrument panel to remove the plenum to gain access to the air doors in the plenum.

The temperature blend door (5), AC/heat door (6), and heat/defrost door (7) are located in the plenum to control air flow to the passenger compartment.

The temperature blend door (5) is controlled by a Bowden cable and operated by movement of the lower control lever in the control assembly. All other doors in the system are vacuum operated and controlled by the (upper) functional control lever.

CONDENSER AND RECEIVER ASSEMBLY

The condenser and receiver assembly is located forward of the radiator, mounted with four support brackets to the radiator support. It is serviced by removing the radiator and sliding the condenser rearward through the radiator support.

EVAPORATOR CORE

REMOVAL

1. Remove the hood and air cleaner, and drain the engine coolant.
2. Disconnect both hydraulic lines at the wiper motor and position them to one side.
3. Disconnect the heater hoses at the heater core and position the hoses and heater water valve (4) away from the housing.
4. Disconnect the vacuum supply hose on top of the housing, and remove the oil pressure sender unit from the back of the engine.
5. Remove the transmission dip stick and tube assembly.
6. Disconnect the multiple connector leading to the icing switch.
7. Remove the evaporator housing front cover. The icing switch capillary tube is inserted straight into the evaporator core through a hole in the evaporator tube support sheet.
8. Unwrap the expansion valve. Disconnect the capillary tube bulb. Disconnect the refrigerant lines at the quick disconnects.
9. Remove the glove compartment liner, and disconnect the electrical and vacuum junction blocks on the inner dash panel (Fig. 65), and set to one side.
10. Remove two evaporator stud nuts, and remove the heater core case cover.
11. Slide the evaporator core forward and upward from the case in the engine compartment and remove the core.

INSTALLATION

1. Position the evaporator core in the case.
2. Position the heater core cover and install the mounting screws and nuts.
3. Position the evaporator to the dash and install the two mounting nuts.
4. Install the electrical and vacuum junction blocks, and install the glove compartment liner.
5. Feed the icing switch tube into the evaporator core and install the evaporator housing cover.
6. Connect the multiple connector leading to the icing switch.
7. Install the transmission dip stick and tube assembly.
8. Connect the vacuum supply hoses at the top of the housing and install the oil pressure sender unit.
9. Connect the heater hoses, and fill the cooling system.
10. Connect the wiper hydraulic lines to the wiper motor.
11. Insert the air cleaner and hood.
12. Start the engine, check the heating system, check the power steering fluid, add fluid if necessary.

HEATER CORE

REMOVAL

1. Remove the hood and air cleaner, and drain the engine coolant.
2. Disconnect both hydraulic lines at the wiper motor and position them to one side.
3. Disconnect the heater hoses at the heater core and position the hoses and heater water valve (4) away from the housing.
4. Disconnect the vacuum supply hose on top of the housing, and remove the oil pressure sender unit from the back of the engine.
5. Remove the transmission dip stick and tube assembly.
6. Disconnect the multiple connector leading to the icing switch.
7. Remove the evaporator housing front cover. The thermostatic (icing) switch capillary tube is inserted straight into the evaporator core through a hole in the evaporator tube support sheet.
8. Remove the glove compartment liner, and disconnect the electrical and vacuum junction blocks on the inner dash panel (Fig. 65), and set to one side.
9. Remove two evaporator stud nuts, and remove the heater core case cover.
10. Remove the core retaining bracket and remove the core from the case.

INSTALLATION

1. Position the core in the case.
2. Position the heater core cover and install the mounting screws and nuts.
3. Position the evaporator to the dash and install the two mounting nuts.
4. Install the electrical and vacuum junction blocks, and install the glove compartment liner.
5. Install the evaporator core housing cover.
6. Connect the multiple connector leading to the thermostatic (icing) switch.
7. Install the transmission dipstick and tube assembly.
8. Connect the vacuum supply hose at the top of the housing and install the oil pressure sender unit.
9. Connect the heater hoses, and fill the cooling system.
10. Connect the wiper hydraulic lines to the wiper motor.
11. Install the air cleaner and hood.
12. Start the engine, check the heating system, check the power steering fluid, add fluid if necessary.

TEMPERATURE BLEND DOOR (5) CONTROL CABLE

REMOVAL

1. Perform the first 9 steps as listed under Heater Core Removal.
2. Through the opening in the dash, remove the clip retaining the cable to the temperature blend door (5).
3. Remove the bolt retaining the cable to the plenum.
4. Remove the inspection plate cover under the steering column.
5. Disconnect the cable from the control assembly and remove the cable.

INSTALLATION

1. Route the new cable from left to right and connect the cable to the control.
2. Install the screw retaining the cable to the front of the plenum.
3. Install the clip retaining the cable to the temperature blend door (5).
4. Adjust the cable turn buckle, and install the lower inspection cover.
5. Perform steps 2 through 11 as listed under Heater Core Installation.

EXPANSION VALVE

1. Discharge the air conditioning system.
2. Remove the insulation from

around the expansion valve.

3. Disconnect the high pressure hose at the expansion valve.

4. Loosen the screw which retains the sensing bulb to the vaporator pipe. Remove the bulb from its clamp.

5. Remove the expansion valve.

6. Install the new expansion valve.

7. Position the sensing bulb in its clamp and tighten the retaining screw.

8. Connect the high pressure hose to the expansion valve.

9. Leak test, evacuate and charge the system.

10. Wrap the insulating material securely around the expansion valve and hose end.

THERMOSTATIC (ICING) SWITCH

REMOVAL

1. Remove the transmission dip stick.

2. Disconnect the multiple wiring connector leading to the thermostatic (icing) switch inside the case cover and the resistor on the front of the cover.

3. Remove the five screws which retain the evaporator cover to the case. Carefully pull the sensing tube from the evaporator core and remove the cover with the switch.

4. Remove the thermostatic (icing) switch retaining screws and remove the switch from the cover.

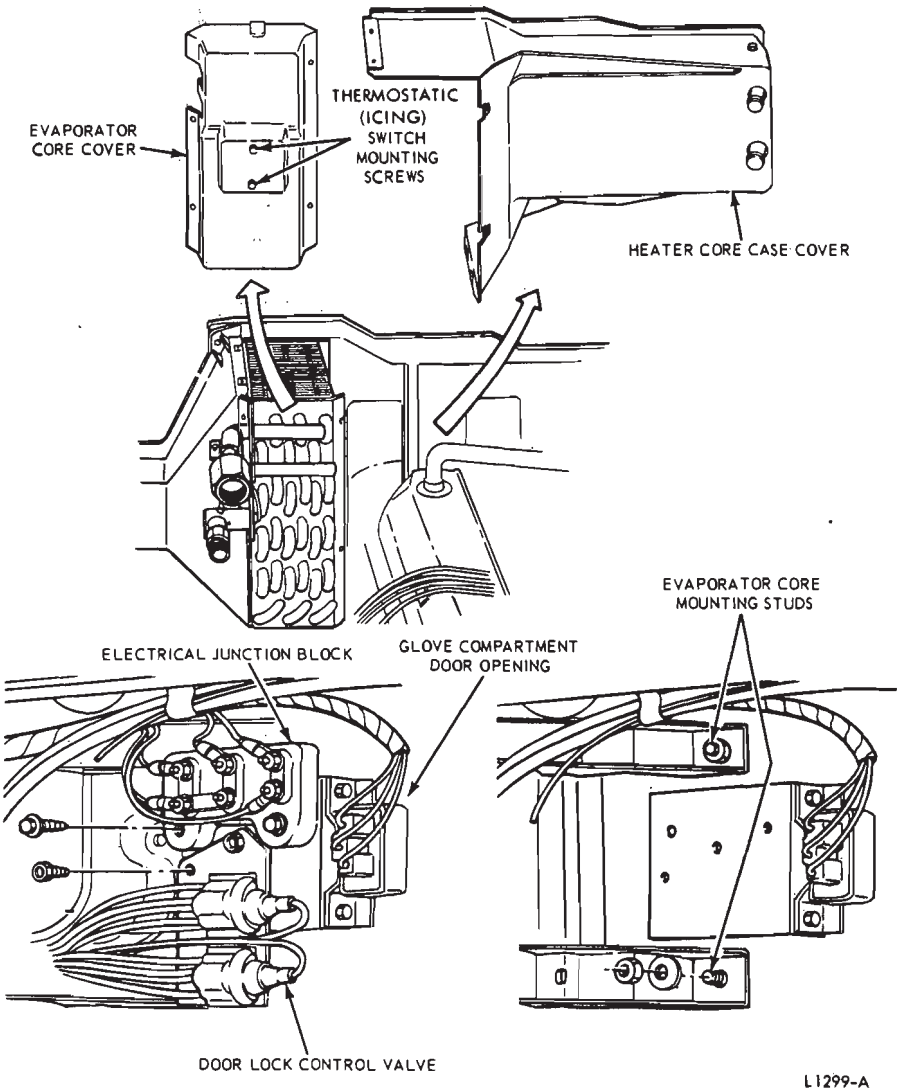

FIG. 65—Evaporator Core Removal—Thunderbird and Continental Mark III

INSTALLATION

1. Position the new switch to the cover and install the switch retaining screws.

2. Feed the sensing tube into the evaporator core while positioning the cover to the evaporator case. Install the cover retaining screws.

3. Connect the multiple wiring connector for the thermostatic switch and the resistor on the front of the cover.

4. Install the transmission dip stick.

CONTROL ASSEMBLY

1. Remove the inspection hole cover plate from below the steering column.

2. Remove the blower switch knob (pull off).

3. Remove the left register and face plate assembly (4 screws). The register will slide out of the left air duct.

4. Remove three control mounting screws from the front face of the instrument panel.

5. Slide the control assembly forward toward the front of the car and down to the opening.

6. Disconnect the vacuum harness wiring and control cable from the control assembly and remove the assembly. A snap clip retains the vacuum multiple connector to the control regulator.

7. Position the control assembly to the inspection hole and install the vacuum harness wiring and control cable to the control. The vacuum multiple connector is designed to connect to the control regulator in only one position.

8. Position the control assembly to the instrument panel and install the mounting screws.

9. Install the left register and face plate assembly.

10. Install the blower switch knob and the inspection hole cover.

11. Check the operation of the control.

BLOWER SWITCH

1. Remove the inspection hole cover plate from below the steering column.

2. Remove the blower switch knob (pull off).

3. Remove the left register and face plate assembly (4 screws). The register will slide out of the left air duct.

4. Remove the blower switch retaining nut from the front of the panel, disconnect the electrical multiple connector and remove the switch.
5. Position the new switch to the inspection hole and connect the multiple connector.
6. Position the switch in the mounting hole and install the mounting nut.
7. Install the left register and face plate assembly and the inspection hole cover plate.

BLOWER MOTOR AND WHEEL ASSEMBLY

REMOVAL

1. Disconnect the battery ground cable from the battery.
2. Remove the courtesy light from the lower edge of the instrument panel.
3. Remove the glove box liner.
4. Remove the right cowl side trim panel.
5. Remove the six duct mounting flange screws. Reach through the recirculating air door (2) opening and remove the vacuum motor hose from the vacuum motor and remove the duct assembly.
6. Remove one screw on the motor mounting plate. Rotate the motor mounting plate counterclockwise to unlock the mounting plate from the case.
7. Disconnect the lead wire to the blower motor. Remove the motor and wheel assembly through the opening in the cowl side panel.

INSTALLATION

1. Position the motor and wheel assembly through the side cowl opening. Twist the assembly clockwise to lock it into place in the case. Install the ground wire and retaining screw.
2. Connect the motor wiring lead.
3. Position the duct assembly and install the six retaining screws.
4. Connect the vacuum hose to the recirculating air door (2) vacuum motor.
5. Install the courtesy light on the lower edge of the instrument panel.
6. Install the glove box liner.
7. Install the cowl side trim panel.
8. Connect the battery ground cable to the battery.

9 COMPRESSOR AND COMPRESSOR COMPONENTS REMOVAL AND INSTALLATION

COMPRESSOR

To reduce the amount of time to make a compressor replacement, the service compressors are dehydrated and filled with refrigerant (R-12) and the proper amount of the specified refrigerant oil is in the crankcase when received.

When replacing a compressor, the oil level in the failed compressor should be checked. Then oil should be removed from the new compressor so that the level in the new compressor is the same as that in the failed compressor. This keeps the amount of oil in the system a constant. Failure to use this procedure is the most common reason for excessive oil in the crankcase. Refer to Compressor Oil Level Check, Adjustments Section 3.

REMOVAL

1. Isolate the compressor. Refer to Adjustments Section 3, and disconnect the two service valves and hoses from the compressor (Fig. 66). Energize the clutch and loosen and remove the clutch mounting bolt.
2. Install a 5/8-11 bolt in the clutch drive shaft hole. With the clutch still energized, tighten the bolt to loosen the clutch from the shaft. Disconnect the clutch wire at the bullet connector.
3. Loosen the idler pulley or alternator and remove the drive belt and the clutch and then remove the mounting bolts and the compressor.

INSTALLATION

Before installing the compressor, carefully remove any burrs or dirt that may be on the compressor shaft. The shaft must be dry and brightly polished.

1. Mount the clutch on the shaft and install the mounting screw and washer finger-tight. Place the compressor on the mounting bracket and install the four mounting bolts finger-tight.
2. Connect the clutch wire, energize the clutch and torque the clutch mounting bolt to specification. Install and tighten the mounting bolts to specification.
3. Install the belt and adjust and tighten the idler pulley.
4. Install the service valves on the compressor using new seals. **Be certain to remove the rubber shipping plugs first.** Tighten the service valve nuts to specification. Do not over tighten. The new ROTOLOK service valves can be rotated slightly on their seat without breaking the high pressure seal. This is not an indication of a loose valve. Leak test the compressor, then evacuate it and connect it back into the system.
5. Check the oil level in the compressor and add or remove oil if necessary (Section 3).

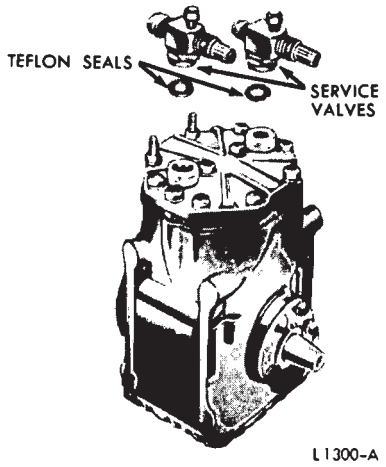

FIG. 66—Compressor Service Valves Removed

COMPRESSOR COMPONENTS

All compressor removal and installation operations, except belt replacement, can be performed only after the unit has been isolated from the rest of the system. (See Adjustments and Service Operations, Section 3 in this part).

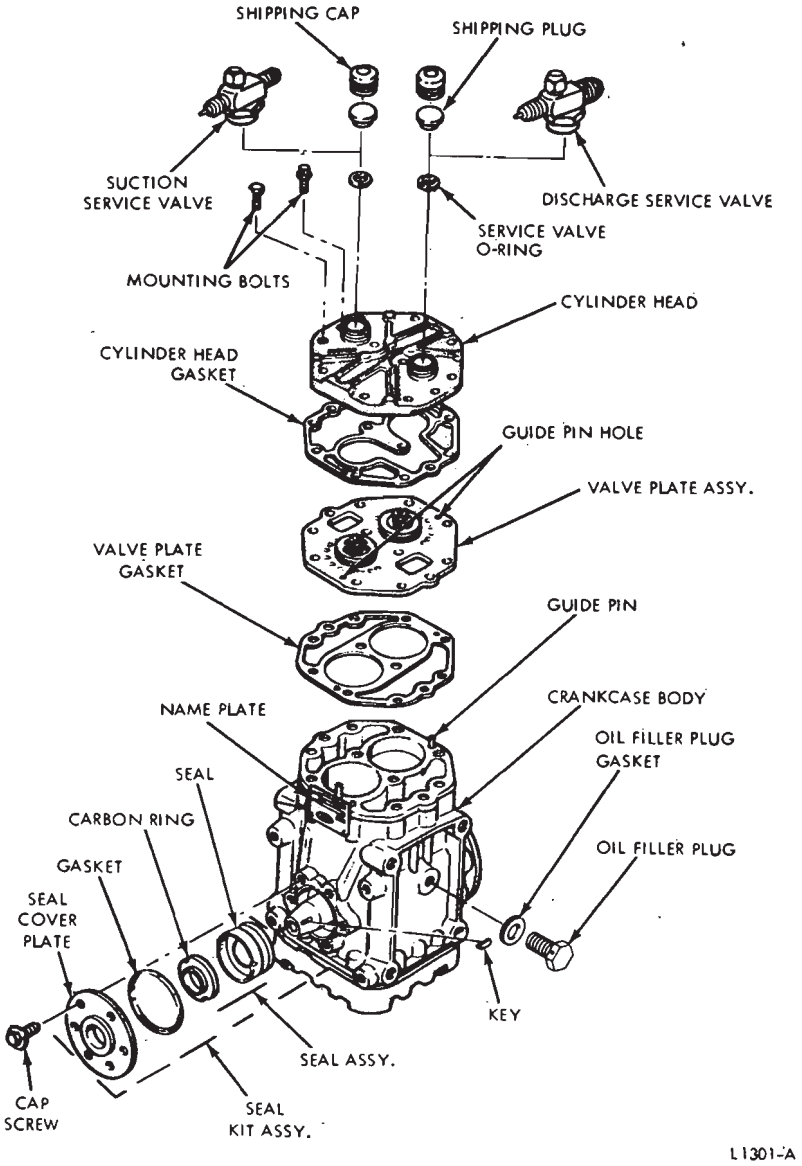

FIG. 67—York Compressor—Disassembled

VALVE PLATE AND HEAD GASKET

The procedure for replacing a blown head gasket is identical to the procedure for replacing the valve plate except that the old valve plate is used. If a defective valve plate has caused the cylinder walls to become scored or has imbedded pieces of metal in the pistons, the compressor should be replaced.

REMOVAL

1. Isolate the compressor (Section 3 in this part), and disconnect both service valves. Place a clean drip pan under the horizontally mounted compressor.
2. Remove the cylinder head bolts.
3. Remove the valve plate and cylinder head from the compressor by tapping upward with a fiber hammer on the overhanging edge of the valve plate.
4. Remove the valve plate from the cylinder head by holding the head and tapping against the valve plate.
5. Remove the drip pan from under the horizontally mounted compressor. Then, remove all particles of gasket, dirt and foreign material from the surface of the cylinder head and cylinder face. **Be extremely careful not to scratch or nick the mating surfaces or any edges.**

Installation (York Compressor—Fig. 67)

1. Apply a thin film of clean refrigeration oil to each side of the valve plate gasket (Fig. 67).
2. Place the new valve plate gasket in position on the crankcase so that the crankcase dowel pins go through the dowel pin holes in the gasket (Fig. 67).
3. Place the valve plate in position on the cylinder so that the dowel pins go through the dowel pin holes (Fig. 67).
4. Apply a light film of clean refrigeration oil on each side of the cylinder head gasket. Then, place the gasket and cylinder head on the cylinder with the dowel pins inserted into the dowel pin holes in the gasket and head.
5. Insert the two longer cap screws in the two center holes of the cylinder head. Then, insert the remaining cap screws in the holes around the edge of the cylinder head. The four 12 point head screws should be inserted into the four holes closest to the service ports.
6. Tighten all head cap screws until they contact the head. Then, torque the two center screws to 15-23 ft-lb.
7. Tighten the remaining cap screws in a pattern so that the cap screws diagonally opposite each other are evenly tightened to 15-23 ft-lbs. After the cylinder head has been installed 1/2 hour, retorque the head bolts to 15-23 ft-lbs.
8. Inspect the top of the cylinder head service valve ports to be sure that they are free of nicks and imperfections. Connect the service valves with new O-rings to the correct compressor ports and torque to specification. Then, check the compressor oil level and add or remove oil as required. (See Compressor Oil Level Check in Section 3). Evacuate the compressor and connect it back into the system.

Installation (Tecumseh Compressor—Fig. 68)

1. Apply a thin film of clean refrigeration oil to each side of the valve plate gasket (Fig. 68).
2. Place the new valve plate gasket on the crankcase cylinder face and align the bolt holes.
3. Place the valve plate on the valve plate gasket so that the letter S (stamped on the valve plate) is on the same side of the crankcase as the word SUCTION. Align the bolt holes.
4. Apply a thin film of clean refrigeration oil on each side of the head gasket.

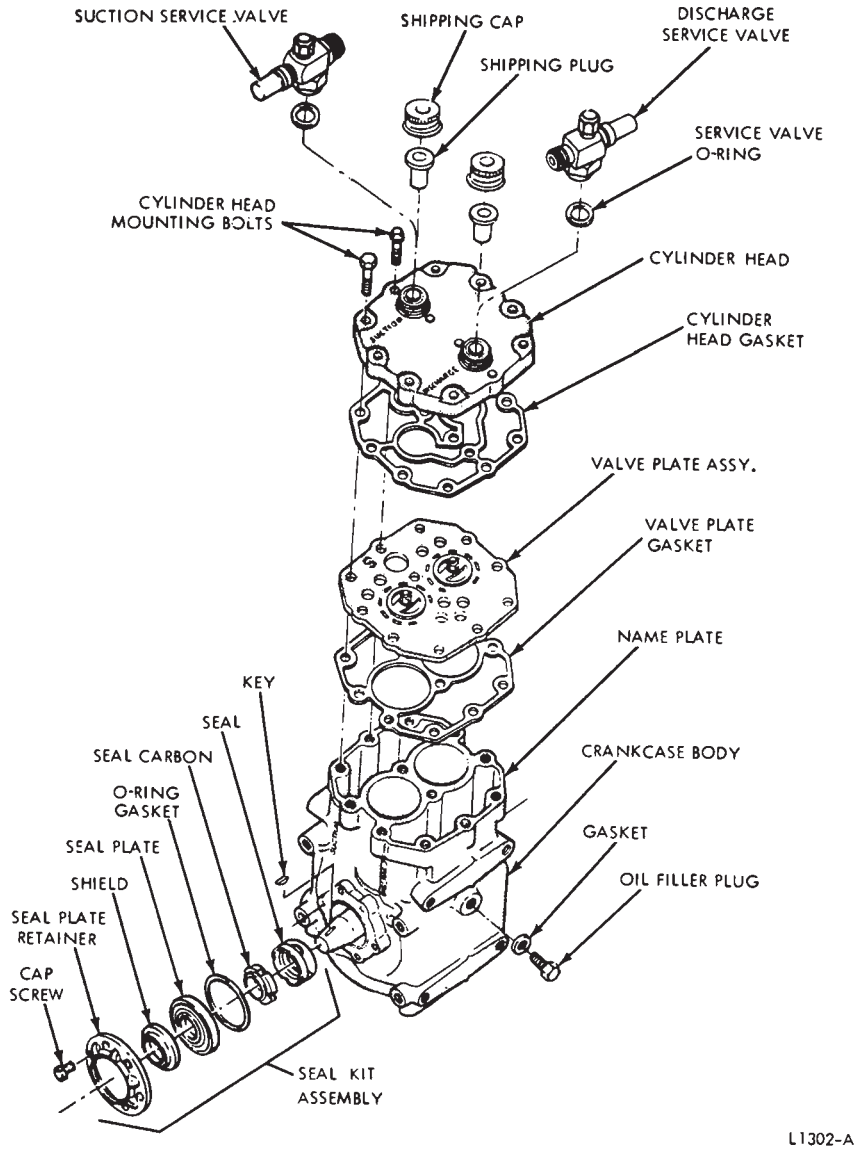

FIG. 68—Tecumseh Compressor—Disassembled

5. Place the head gasket on the valve plate with the largest hole of the gasket over the largest hole of the valve plate. Line up the holes of the gasket with those of the valve plate.

6. Position the cylinder head on the compressor. **The word SUCTION on the head must be up and on the same side as the word SUCTION on the compressor crankcase.**

7. Align the bolt holes of the cylinder head, gaskets and valve plate with the holes in the compressor crankcase.

8. Install the cylinder head attaching bolts in the bolt holes. The four 12 point head bolts must be inserted in the four holes nearest the head service ports.

9. Tighten the bolts until they contact the top surface of the cylinder head. Then, tighten the head bolts in a sequence so that the bolts diagonally opposite each other are evenly tightened to a torque of 20-24 ft-lbs.

After the cylinder head has been installed 1/2 hour, retorque the head bolts to 20-24 ft-lbs.

10. Inspect the top of the cylinder head service valve ports to be sure that they are free of nicks and imperfections.

Connect the service valves with new O-rings to the correct compressor ports and torque to specification.

11. Check the compressor oil level and add or remove oil as required. (See Compressor Oil Level Check in Section 3). Evacuate the compressor and connect it back into the system.

CRANKSHAFT SEAL

Removal

1. Isolate the compressor, loosen and remove the belt.

2. Remove the clutch and remove the Woodruff key. Carefully remove the secondary dust shield so as to avoid marring the shaft.

3. Carefully remove all accumulated dirt and foreign material from the seal plate and surrounding area of the compressor, and position a small drain pan beneath the seal plate.

4. Remove the seal plate cap screws, and gently remove the plate and gasket. Do not mar or scratch the sealing surfaces, or the polished shaft surface.

5. Remove the carbon seal ring and seal housing assembly from the crankshaft. A disassembled view of the crankshaft seal assembly is included in Figs. 67 and 68.

6. Clean all old gasket material from the seal plate and the compressor. Make certain that the shaft, the seal plate and the compressor gasket surfaces are completely clean.

7. Check the face of the crankshaft front bearing journal in the seal housing to make certain that there are no nicks or burrs. Check the crankshaft surface to be sure it is not damaged. Check all parts of the seal assembly to be sure that they are not damaged.

8. Inspect the compressor internal components for damage.

Installation—Tecumseh Compressor

1. Wash the new seal assembly components in clean refrigeration oil.

2. Coat the exposed surface of the crankshaft with clean refrigeration oil.

3. Place the seal (Fig. 68) over the compressor shaft with the end that fits the carbon ring facing out.

4. Position the carbon ring over the shaft and to the seal. The raised rim of the carbon ring must face outward.

5. Insert the O-ring in the crankcase mating surface for the seal plate.

6. Position the seal plate, shield and seal plate retainer to the compressor crankcase and align the cover attaching screw holes. Push the seal plate retainer against the mating surface of the crankcase and install the six attaching screws. Torque the screws in a circular sequence to 54-78

in-lb.

7. Rotate the shaft by hand 15 to 20 revolutions to seat the seal.

8. Make certain that there are no burrs or dirt on the compressor shaft. Install the key and magnetic clutch on the shaft.

9. Install the belt and adjust the tension to specifications.

10. Check the compressor oil level (Section 3).

Installation—York Compressor

1. Wash the new seal assembly components in clean refrigeration oil.

2. Position the seal over the end of the shaft with the carbon ring retainer facing out. Move the seal in and out on the shaft a few times to insure a good seal between the seal and the shaft.

3. Push the seal all-the-way on the shaft. Be sure that the seal drive ring slots engage the drive pins on the shaft bearing journal face.

4. Place the carbon ring (Fig. 67) over the shaft and in the seal ring retainer. The polished surface of the carbon ring must face out and the lugs must engage the ring retainer and be fully seated.

5. Apply a light film of clean refrigeration oil on the matching faces of the crankcase and seal cover plate. Then, place the gasket in position on the crankcase face.

6. Place the seal cover plate in position (Fig. 67), with the polished side facing the carbon ring. Then, install the cap screws. Tighten the cap screws evenly while turning the crankshaft. Be sure that the clearance between the crankshaft and the hole in the seal cover plate is even all around the shaft. If the clearance is not equal all around the shaft, gently tap the seal face into position until the clearance is equal. Then, tighten diagonally opposite cover plate cap screws evenly to 7-13 ft-lb.

7. Make certain that there are no burrs or dirt on the compressor shaft. Install the key and magnetic clutch on the shaft.

8. Install the belt and adjust the tension to specification.

9. Check the compressor oil level (Section 3).

CLUTCH

1. Loosen and remove the belt.

2. Energize the clutch and loosen and remove the clutch mounting bolt.

3. Install a 5/8-11 bolt in the clutch drive shaft hole. With the clutch still energized, tighten the bolt to loosen the clutch from the shaft, then remove the magnetic clutch.

4. Carefully remove any burrs or dirt that may be on the compressor shaft. The shaft must be dry and brightly polished. Install the clutch, the clutch mounting bolt, and the washer.

5. Energize the clutch, and torque the bolt to specification.

6. Install and adjust the belt.

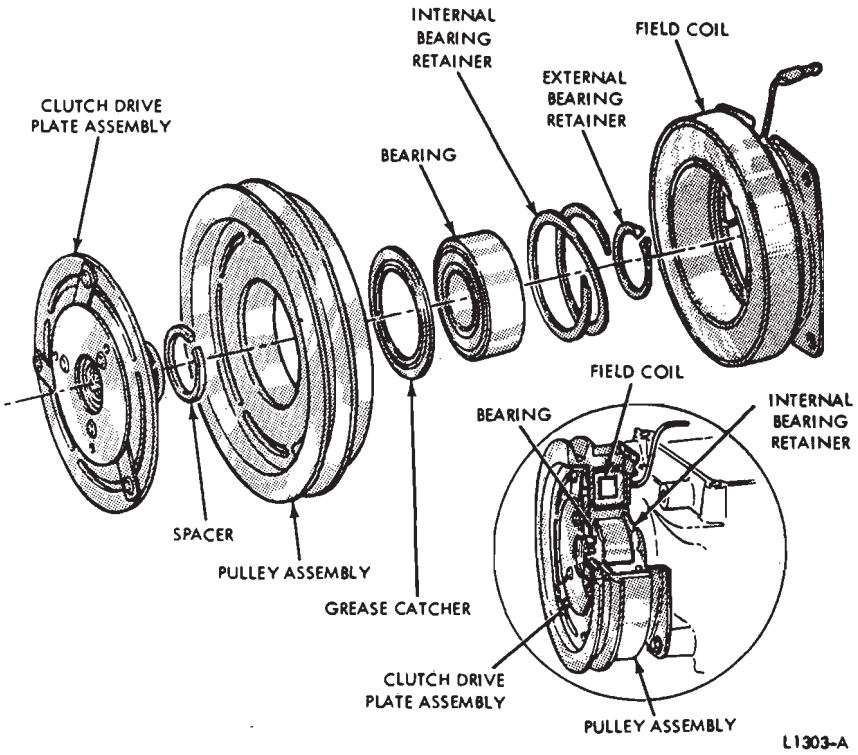

FIG. 69—A/C Clutch Assembly

CLUTCH BEARING

When **installing** a new bearing, extreme care must be taken to support the bearing and the clutch assembly so as not to place any pressure on the balls of the bearing.

The following procedure should be rigidly adhered to during bearing replacement. Any exceptions due to clutch design are noted. Refer to Fig. 69.

REMOVAL

1. With the clutch assembly face down, remove the external bearing retainer from the drive plate shaft.

2. Support the clutch, face down, by the outer edge so as to clear the drive plate. Insert a 5/8-11 inch bolt through the drive plate shaft and hand tighten the bolt.

3. Smoothly apply enough pressure on the bolt to free the shaft from the bearing inner race and then remove the drive plate assembly. Before proceeding, check the drive face plate for any excessive warping or breakage. Replace the entire clutch assembly if any damage is evident.

4. Remove the internal bearing retainer from the pulley assembly. Support the pulley assembly, face up, by the bearing bore making certain that there is no interference when the bearing is pressed out. With a suitable plug, force the bearing out of the pulley assembly by the inner race. **The plug should clear the metal grease catcher, but do not remove the grease catcher from the pulley assembly.**

INSTALLATION

Before installing the bearing, be sure that all bearing contact surfaces are clean.

1. Support the pulley assembly face down, near the bearing bore but do not support it by the sides of the pulley grooves as this may bend the pulley assembly.

2. Press a new bearing into the

bearing bore by the outer race. **Do not press the bearing in by the inner race.** Pressure should be uniform and in line with the axis of the bearing bore. Replace the internal bearing retainer.

3. Support the pulley assembly, face up, by the bearing inner race. Insert a 5/8-11 inch bolt into the front of the drive face plate and carefully press the shaft into the bearing inner race, exerting pressure on the bolt. Be certain that the shaft is in line with the axis of the bearing bore.

4. Replace the external bearing retainer onto the drive plate shaft. Rotate the pulley relative to the drive plate to make certain that there is free rotation and that there is no looseness of the assembly before installing the clutch onto the compressor.

DRIVE BELT

1. Loosen the idler pulley or compressor and remove the belt.
2. Place the new belt in position, and adjust the belt tension (Tool T63L-8620-A) to specification. Then, tighten the idler pulley or compressor. to or compressor.
3. Check the belt alignment, and adjust it if necessary.

10 SPECIFICATIONS

HEATER–AIR CONDITIONER

Vehicle	Refrigerant 12 Capacity (Pounds)	CURRENT DRAW @ 12 VOLTS		A/C Thermostat (Ambient) Switch ± 3° F.
		Blower Motor (High Speed)	Magnetic Clutch	
Montego, Falcon, Fairlane, Maverick	1 7/8	16–20 Amp.	3.75 Amp. Max.	
Ford and Mercury	3	18.5–20.00 Amp.	3.75 Amp. Max.	
Thunderbird & Continental Mark III	2 1/4	16–20 Amp.	3.75 Amp. Max.	
Lincoln Continental	4 +1/4 or -0	21–24 Amp.	3.75 Amp. Max.	Cut Out 35° F. Cut In 55° F.
Mustang and Cougar	1 3/4	16.0 Amp.	3.75 Amp. Max.	

AIR CONDITIONING COMPRESSOR (ALL CARS)

Torque Limits (Ft-Lbs)		
Description	Tecumseh	York
Cylinder Head	20–24	15–23
Front Seal Plate	54–78 In-Lb	7–13
Service Valve (Tube-O)	20 ± 10	20 ± 10
Mounting Bolt	20–30	20–30
Oil Filler Plug	18–22	4–11
Clutch Mounting	20–30	20–30
Base Plate		14–22
Back Plate		9–17

COMPRESSOR OIL CAPACITIES①

		Vertical	Horizontal
Tecumseh③ (11 Fluid Ounces)		7/8 Inch Min. 1 3/8 Inch Max.	7/8 Inch Min. 1 5/8 Inch Max.
York③ (10 Fluid Ounces)		7/8 Inch Min. 1 1/8 Inch Max.	13/16 Inch Min. 1 3/16 Inch Max.
Driven Belt Tension (Between Fan Pulley and Air Conditioner Compressor):	New	140 lbs.	
	Used②	110 lbs.	
	Minimum②	90 lbs.	
Belt Tension Tool		T63L-8620-A	
Compressor Clutch Run-Out		1/32 Inch Maximum	

①Use Suniso No. 5, Texaco Capella E or Equivalent.
②Belt Operated for a Minimum of 10 Minutes is Considered a Used Belt.
③Do not add oil if dip stick indicates proper level of oil between minimum and maximu.
If dip stick is below minimum level, add oil up to minimum oil level only.

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HEATER-A/C SPECIFICATION CHART

PART 34-05 *Automatic Temperature Control*

COMPONENT INDEX **Applies Only to Models Indicated**	Lincoln-Continental	Thunderbird	Continental-Mark III
AC/HEAT DOOR (6)			
Adjustment	05-11	05-18	05-18
A.T.C. BOX			
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Testing	05-07	05-18	05-18
BLOWER MOTOR			
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CONTROL ASSEMBLY			
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CONTROL RHEOSTAT			
Adjustment	05-11	05-23	05-23
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ENGINE THERMOSTAT SWITCH			
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ELECTRICAL SYSTEM			
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RECIRCULATING AIR DOOR (2)			
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A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 LINCOLN CONTINENTAL

DESCRIPTION AND OPERATION

The Lincoln Continental automatic temperature control air conditioning and heating system is similar to the manual air conditioning and heating system except for the following modifications(Fig. 1):

1. The Restrictor Air Door and vacuum motor (3) have been removed.
2. The AC/Heat Door (6) three-position vacuum motor has been replaced with a two-position vacuum motor.
3. The control head assembly is a multiple electrical switch and rheostat device rather than the multiple vacuum switching device used in the Manual A/C—Heater System.
4. An automatic temperature control (A.T.C.) box and temperature sensors have been added.

A.T.C. BOX

The automatic temperature control (ATC) box has been redesigned and located in the left cowl side panel (Fig. 2). The controls in the instrument panel (Fig. 3) are operated by moving the functional control lever to any one of the six control positions and setting the temperature control lever to any desired temperature.

ENGINE THERMOSTAT SWITCH

An engine thermostat switch will delay the operation of the system until the engine coolant has warmed enough to reduce the amount of cold air blast from the heater outlets. The system will then heat the passenger compartment to the desired temperature, and level out to maintain the pre-set temperature.

SYSTEM OPERATION

During operation, outside air is drawn from the cowl vent just below the windshield, except at maximum cooling when recirculated air is used.

The system is called a **reheat** system to provide conditioned air to the vehicle interior. With this type of system all air flow from the blower passes through the evaporator core. Temperature is then regulated by reheating the cooler air to the desired temperature. Temperature of the outlet air is varied by the Temperature Blend Door (5) which controls the amount of cooled air that flows through and/or around the heater core, and then mixes in the distribution plenum. From here it is diverted to the heater outlets, the defroster nozzles, or the air conditioning registers.

TESTING

VACUUM MOTORS

The test charts in Figs. 4 and 5 will determine which vacuum motor should be functioning with applied vacuum during the various functional lever positions and automatic temperature control requirements. Check for proper operation by following the charts (Figs. 4 and 5) along with the descriptions that follow:

Each vacuum control motor, and the door or valve it operates, has been assigned a code number that relates directly to its application in the system as follows:

(1) Outside Air Door

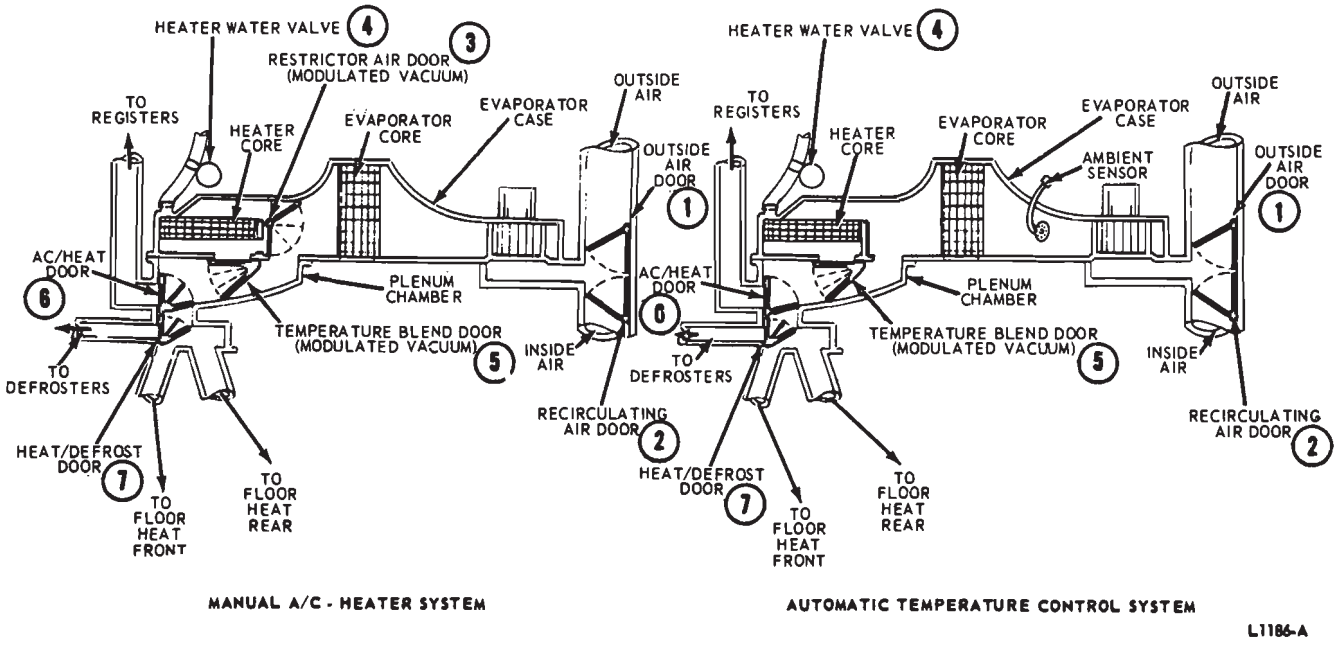


FIG. 1—Manual A/C—Heater and Automatic Temperature Control Systems—Lincoln Continental

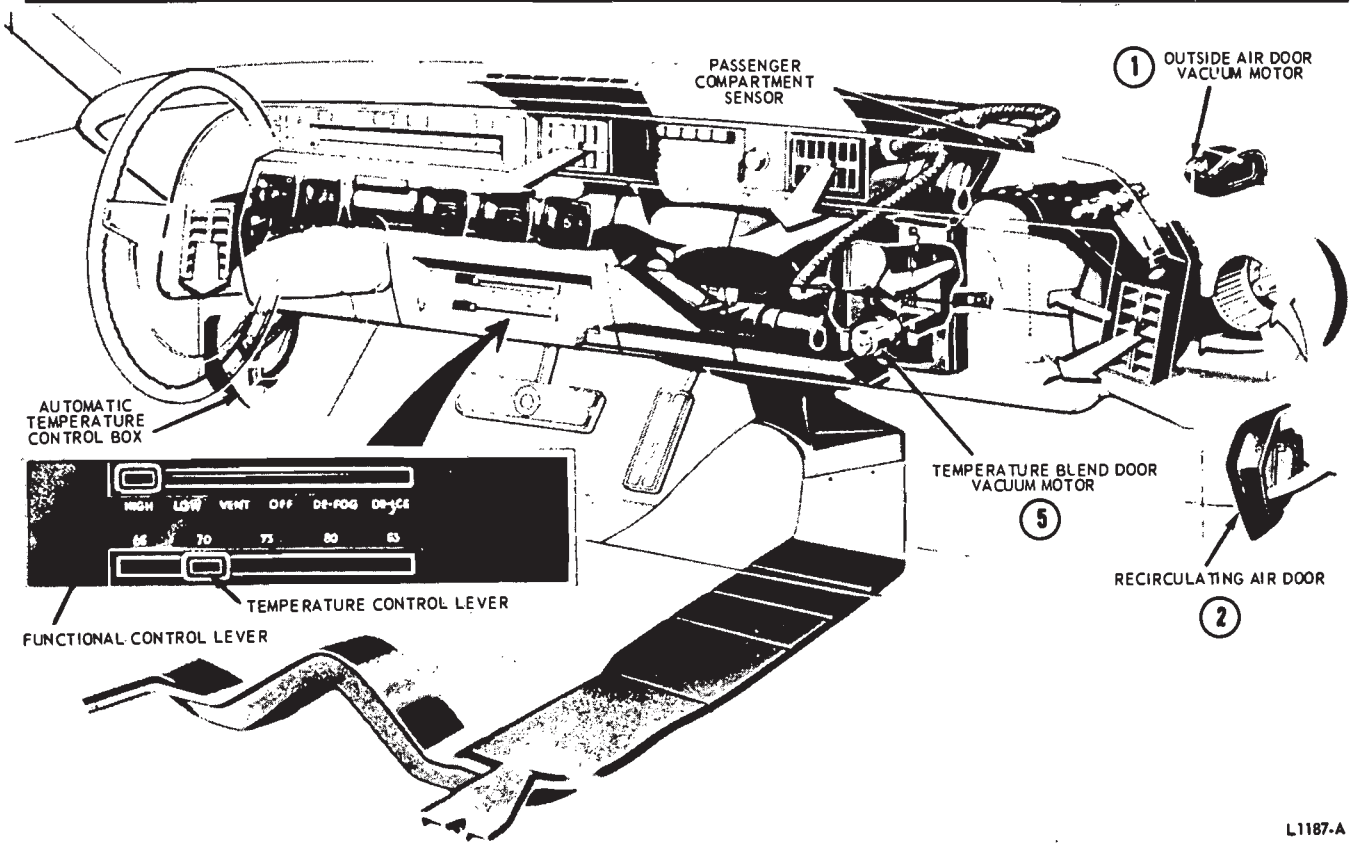


FIG. 2—Automatic Temperature Control System Air Flow (Maximum A/C Position)—Lincoln Continental

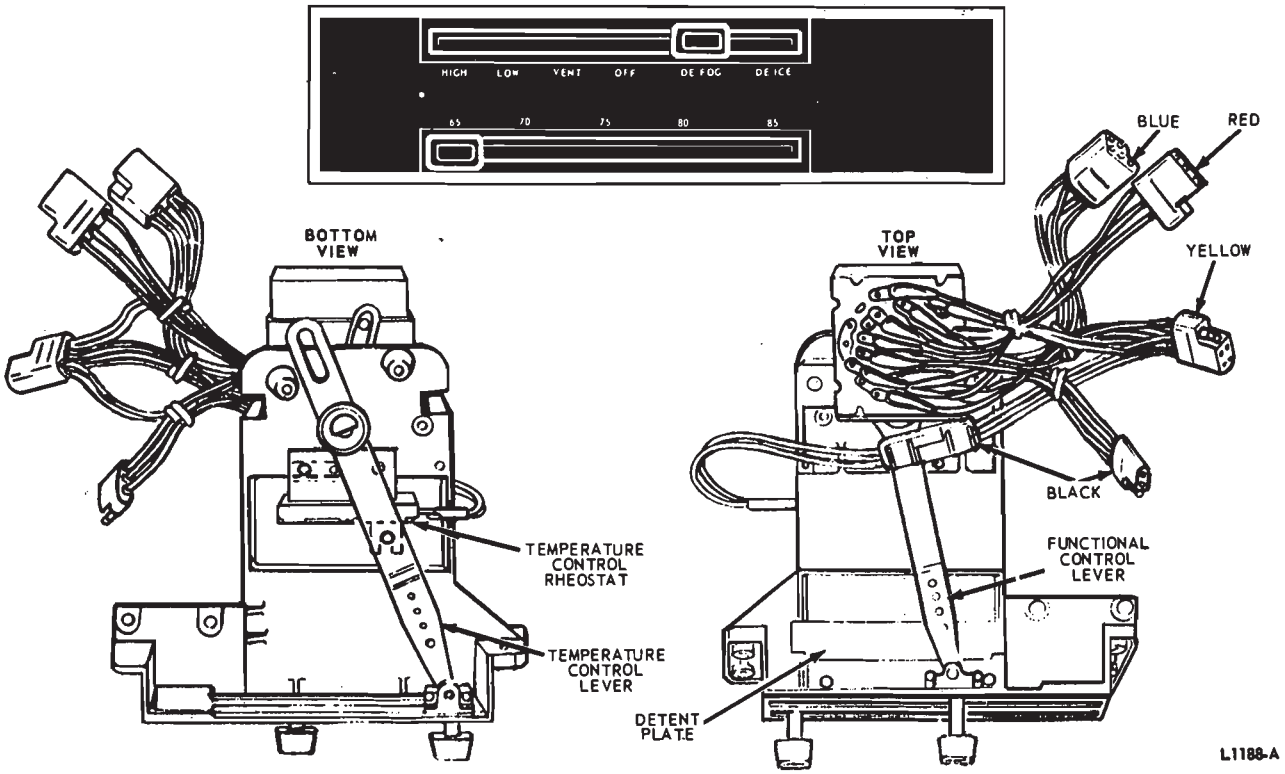
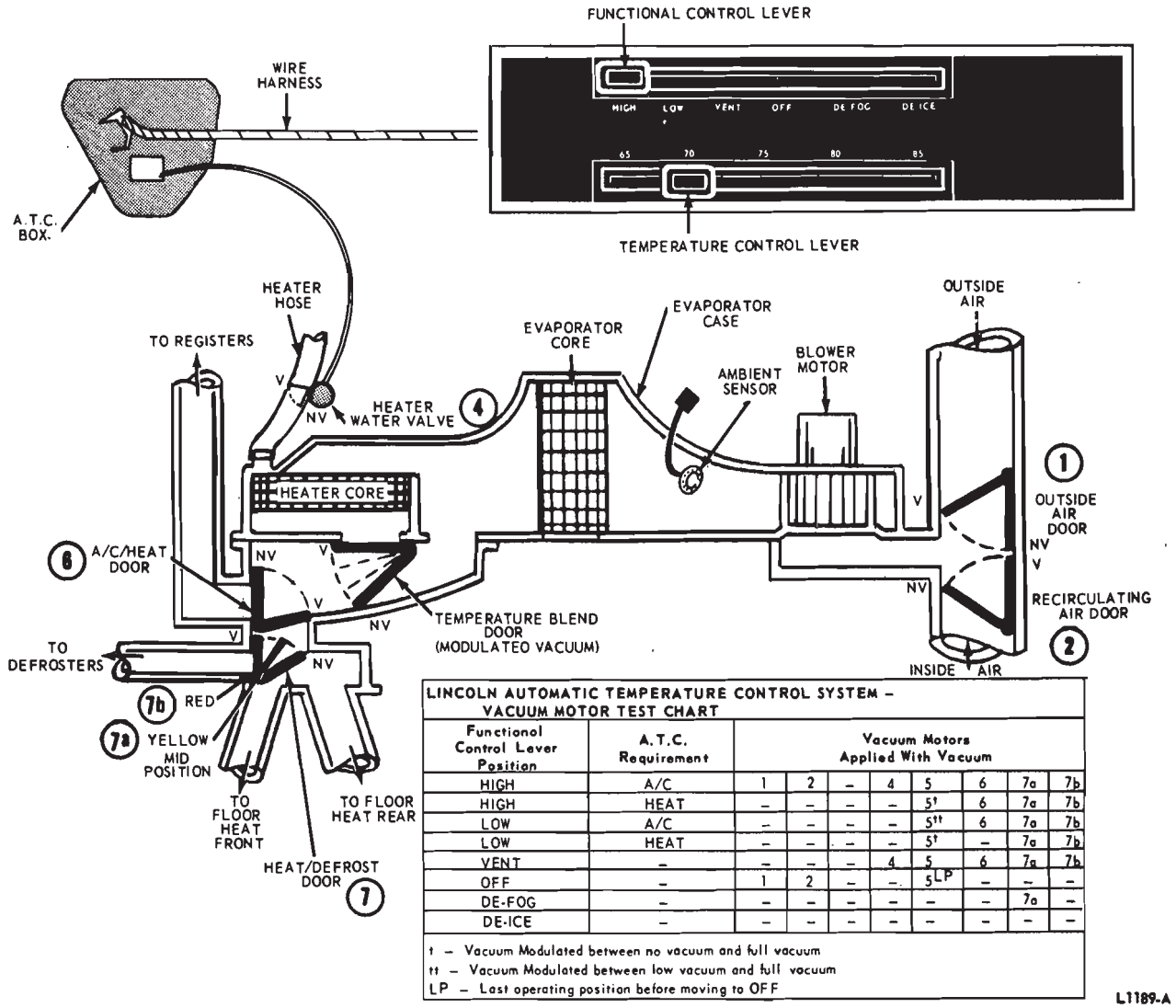


FIG. 3—Automatic Temperature Control System Control Assembly—Lincoln Continental



LINCOLN AUTOMATIC TEMPERATURE CONTROL SYSTEM – VACUUM MOTOR TEST CHART

Functional Control Lever Position	A.T.C. Requirement	Vacuum Motors Applied With Vacuum							
HIGH	A/C	1	2	–	4	5	6	7a	7b
HIGH	HEAT	–	–	–	–	5†	6	7a	7b
LOW	A/C	–	–	–	–	5††	6	7a	7b
LOW	HEAT	–	–	–	–	5†	–	7a	7b
VENT	–	–	–	–	4	5	6	7a	7b
OFF	–	1	2	–	–	5LP	–	–	–
DE-FOG	–	–	–	–	–	–	–	7a	–
DE-ICE	–	–	–	–	–	–	–	–	–

† – Vacuum Modulated between no vacuum and full vacuum
†† – Vacuum Modulated between low vacuum and full vacuum
LP – Last operating position before moving to OFF

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FIG. 4—Automatic Temperature Control Blend Air System Schematic—Lincoln Continental

(2) Recirculating Air Door
(3) Not used in the A.T.C. system
(4) Heater Water Valve
(5) Temperature Blend Door
(6) AC/Heat Door
(7) Heat/Defrost Door

The functions of these doors are identical in operation to the Manual A/C—Heater system except that the AC/Heat Door (6) does not have a mid-position.

CONTROL OPERATION

HIGH—Cooling

As the passenger compartment temperature approaches the temperature control setting, the Outside Air Door (1) is opened (no vacuum) admitting outside air and the Recirculating Air Door (2) is closed (no vacuum) (Fig. 4).

When the passenger compartment temperature and the control setting temperature are nearly balanced, the Temperature Blend Door (5) is actuated. The door moves to a position so that part of the air leaving the evaporator core is directed through the heater core where it is warmed. Blend air (the mixture of cool and warm air) then is directed into the passenger compartment through the air conditioning ducts and registers.

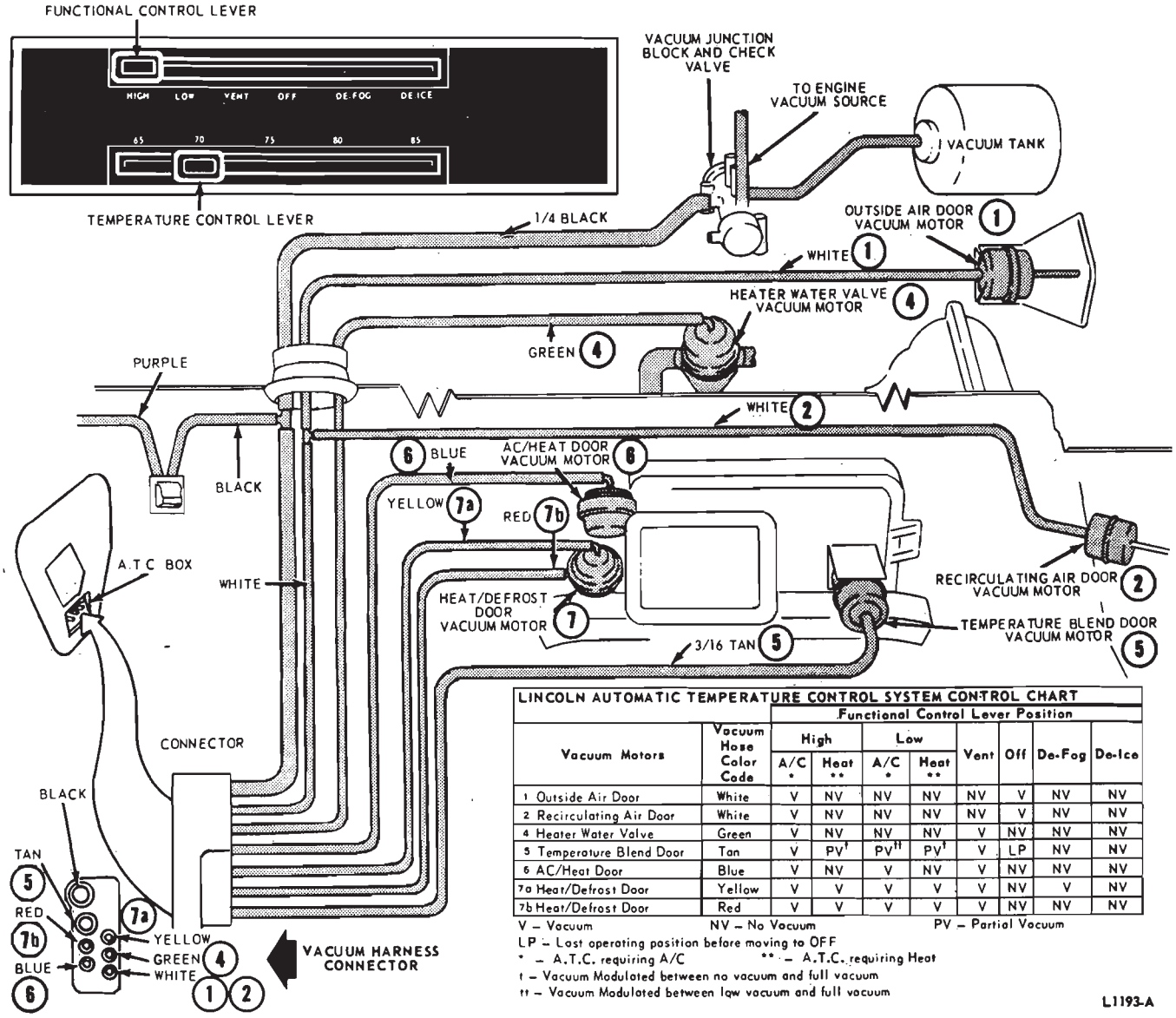
The position of the Temperature Blend Door (5) changes automatically to maintain the temperature selected on the dial; at the same time, blower speeds are reduced. If the passenger compartment temperature rises above the temperature control setting, the Temperature Blend Door (5) moves to admit more cool air and less warm air. If the passenger compartment temperature drops below the temperature control setting, the Temperature Blend Door (5) moves to admit more warm air and less cool air. As maximum heating or cooling operation is approached, blower speeds are automatically increased.

LOW—Cooling

Same as **HIGH** maximum cooling except for lower blower speeds, and fresh air is used at all times in **LOW.**

LOW or HIGH Heating

When the passenger compartment temperature and the temperature con-



LINCOLN AUTOMATIC TEMPERATURE CONTROL SYSTEM CONTROL CHART

Vacuum Motors	Vacuum Hose Color Code	Functional Control Lever Position							
		High		Low		Vent	Off	De-Fog	De-Ice
		A/C *	Heat **	A/C *	Heat **				
1 Outside Air Door	White	V	NV	NV	NV	NV	V	NV	NV
2 Recirculating Air Door	White	V	NV	NV	NV	NV	V	NV	NV
4 Heater Water Valve	Green	V	NV	NV	NV	V	NV	NV	NV
5 Temperature Blend Door	Tan	V	PV†	PV††	PV†	V	LP	NV	NV
6 AC/Heat Door	Blue	V	NV	V	NV	V	NV	NV	NV
7a Heat/Defrost Door	Yellow	V	V	V	V	V	NV	V	NV
7b Heat/Defrost Door	Red	V	V	V	V	V	NV	NV	NV

V – Vacuum NV – No Vacuum PV – Partial Vacuum
LP – Last operating position before moving to OFF
* – A.T.C. requiring A/C ** – A.T.C. requiring Heat
† – Vacuum Modulated between no vacuum and full vacuum
†† – Vacuum Modulated between low vacuum and full vacuum

L1193-A

FIG. 5—Automatic Temperature Control System Vacuum Diagram—Lincoln Continental

trol lever setting are nearly balanced, the Temperature Blend Door (5) is actuated. The door moves to a position so that only part of the air leaving the evaporator core is directed through the heater core where it is warmed. Blend air (the mixture of cool and warm air) then is directed into the passenger compartment.

The position of the Temperature Blend Door (5) changes automatically to maintain the temperature selected on the control lever; at the same time blower speeds are reduced. If the passenger compartment temperature rises above the temperature control lever setting, the Temperature Blend Door (5) moves to admit more cool air and less warm air. If the passenger compartment temperature drops below the temperature control lever setting, the Temperature Blend Door (5) moves to admit more warm air and less cool air. As maximum heating or cooling operation is approached, blower speeds are automatically increased.

Approximately 10 percent of this air flow is diverted to the defroster nozzles.

VENT Position

In VENT position all doors are in the same position as in LOW—COOLING and the Temperature Blend Door (5) directs all air around the heater core. The blower speed is at a predetermined medium setting.

OFF Position

In OFF position, the Outside Air Door (1) is closed, the Recirculating Air Door (2) is open, the AC/Heat Door (6) is closed (no vacuum), and the Heat/Defrost Door (7) is in the closed (no vacuum) position. The Heater Water Valve (4) is open (no vacuum) the blower is off, the A/C clutch is off and the Temperature Blend Door (5) remains in the last operational position.

DEFOG Position

In DEFOG, operation is the same as in HIGH HEATING, except that the Heat/Defrost Door (7) is in mid-position (7a vacuum). Forty percent of the air flow is to the defroster no-

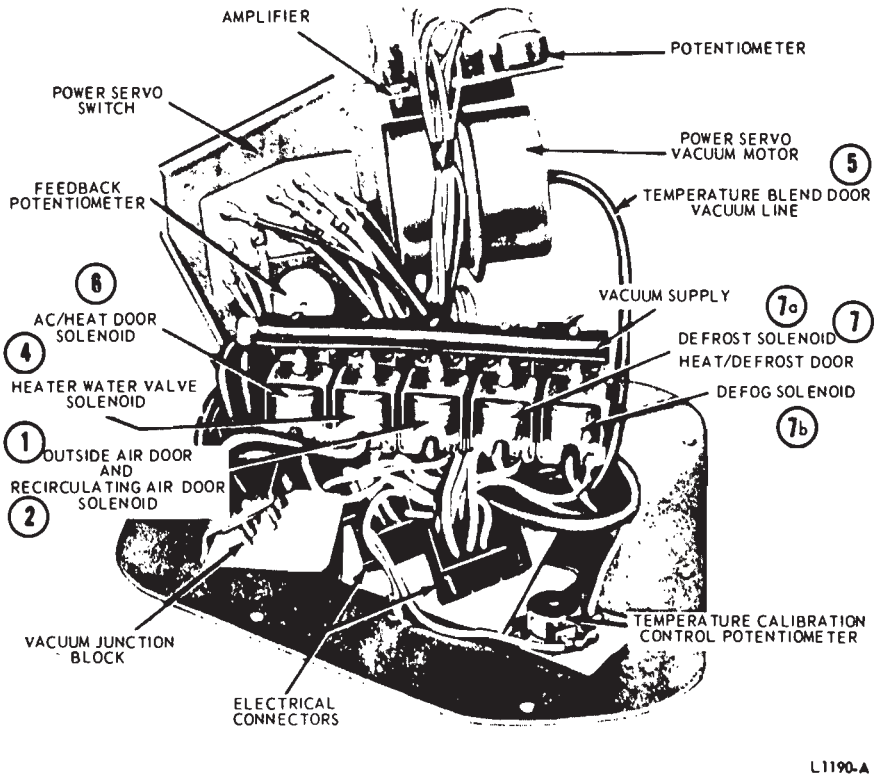


FIG. 6—A.T.C. Box Door Control Solenoids

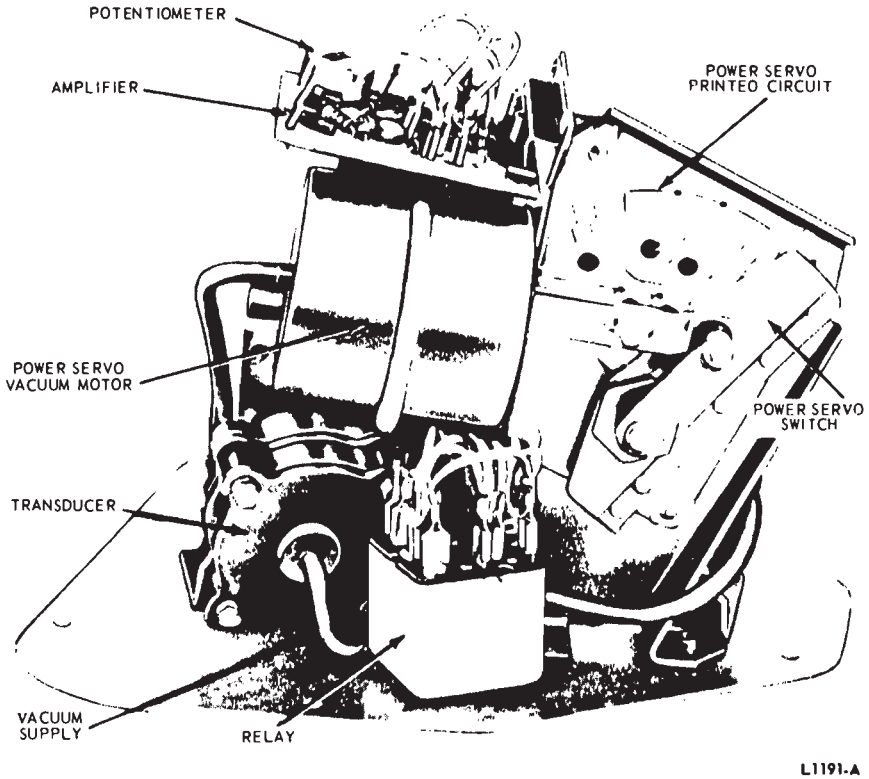


FIG. 7—A.T.C. Box—Power Servo Components

zzles with the remainder directed to the heat ducts. There is no system operational delay in **DEFOG** due to engine coolant temperatures.

DEICE Position

When the functional control lever is in the **DEICE** position, the Temperature Blend Door (5) is fully open and all incoming air is diverted through the heater core to be warmed, and then directed to the defroster nozzles (Heat/Defrost Door 7a and 7b no vacuum). The system operates on high blower only in **DEICE.** Ten percent of this airflow is bled to the heater floor outlets.

VACUUM CONTROL SYSTEM

The Automatic Temperature Control System vacuum schematic and a chart listing vacuum system operating conditions are shown in Fig. 5. A pictorial view of the vacuum control system is shown in Figs. 6, 7 and 8.

The vacuum control system consists of a vacuum reserve tank, check valve, Heater Water Valve (4), five vacuum motors, ATC box (Automatic Temperature Control) and the required vacuum tubing and junction blocks to connect the components. The vacuum reservoir is located on the front of the right front fender.

All air flow control doors are vacuum operated. The controls on the instrument panel provide the electrical requirements to the ATC box. The ATC box, in turn, supplies vacuum to the required vacuum motors which open and close the respective air doors (Fig. 4).

The Outside Air Door (1), Recirculating Air Door (2), and AC/Heat Door (6) are either fully open or fully closed, and the Heat/Defrost Door (7) is halfway open, fully open or closed. The Temperature Blend Door (5) may assume any position within the limits of its travel depending on the amount of vacuum supplied from the ATC box. The Heater Water Valve (4) is fully open or fully closed.

When the system calls for maximum cooling, the Temperature Blend Door (5) is closed at a minimum of 10 inches vacuum and all air bypasses the heater core. The AC/Heat Door (6) is in the open position (vacuum) and the Heat/Defrost Door (7) is in the open position (7a and 7b vacuum) at a minimum of 10 inches vacuum and air is distributed through the A/C registers.

When the passenger compartment

temperature approaches the desired temperature setting, the AC/Heat Door (6) may change from the A/C register (vacuum) to the floor heat position (no vacuum), or from heat to air conditioning if the Temperature Blend Door (5) reaches approximately mid-position. The AC/Heat Door (6) is positioned by a switch contact change at the power servo switch. This energizes the AC/Heat Door (6) solenoid to direct air to the registers when the system calls for A/C or de-energizes the solenoid and directs the blended air to the heater floor outlets when the system calls for heat.

ELECTRICAL SYSTEM

Automatic Temperature Control Box

The ATC box contains a transistorized DC amplifier, a transducer to convert the amplifier electrical output to a variable vacuum supply, one relay, power servo, and five vacuum control solenoids (Figs. 6 and 7).

A schematic wiring diagram of the ATC box and related components is shown in Fig. 9. The input signal to the amplifier is dependent on the series resistance of the temperature control lever rheostat, the fixed value of a calibration rheostat (located in the control unit), and the combined resistance of the two sensors.

The amplifier output is used to control a transducer, thereby converting electrical energy to a variable vacuum supply to accomplish the required automatic operating sequences. The transducer output vacuum controls a modulated vacuum operated servo switch, and the Temperature Blend Door (5) which regulates the hot and cold air flow. The vacuum operated servo switch located in the ATC box selects blower speeds and operates the vacuum solenoids which control air distribution through the heater outlets or air conditioning registers, and also controls the Outside Air Door (1) and the Recirculating Air Door (2).

Cold Weather Operation

Assuming an initial cold weather operation, the system functions as follows: Set the functional control lever for **HIGH** if extremely cold, and set the temperature control lever in a comfort setting (approximately 75 degrees F.). The heating system will be automatically positioned for maximum heat and high blower operation,

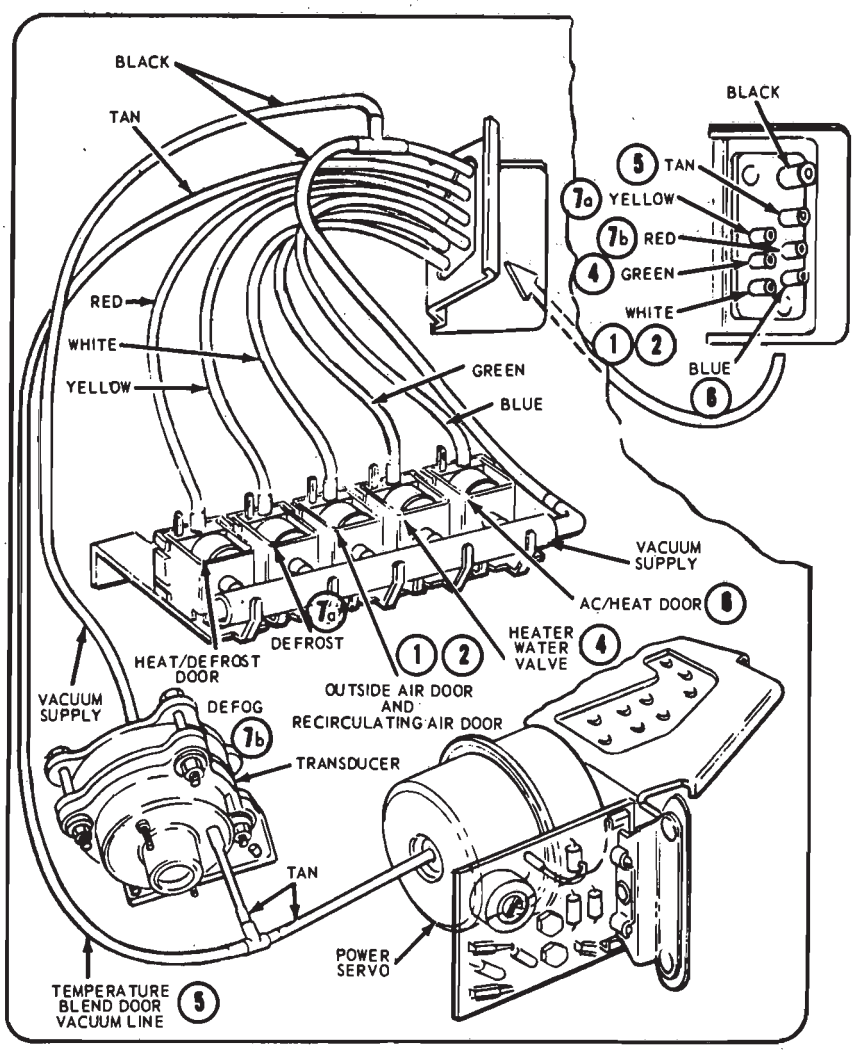


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FIG. 8—A.T.C. Box Vacuum Diagram

but will not turn on until the engine coolant temperature reaches approximately 130 degrees F. (This normally takes 3-5 minutes of engine operations).

In cold temperatures, the sensors will have a relatively high series resistance. This controls the amplifier and transducer in a manner to produce a minimum outlet vacuum and calls for maximum heater operation.

As the vehicle interior warms up, the passenger compartment sensor resistance value decreases resulting in an increased transducer vacuum output. As vacuum output increases, the Temperature Blend Door (5) position will change reducing discharge air temperature, and the vacuum operated servo switch will cause the blower speed to drop off. As the passenger compartment temperature approaches the temperature control lever setting, the transducer vacuum will hold at the level required to balance the heat loss or gain from the vehicle to the outside air.

Hot Weather Operation

Now assume that the vehicle is to be operated in hot weather. With the same control lever settings as used for cold weather operation, the system will come on when the engine is started.

In hot temperatures, the sensors will have a low series resistance. This controls the amplifier and transducer and produces a high vacuum. Under these conditions the transducer vacuum is at its highest value (at or above

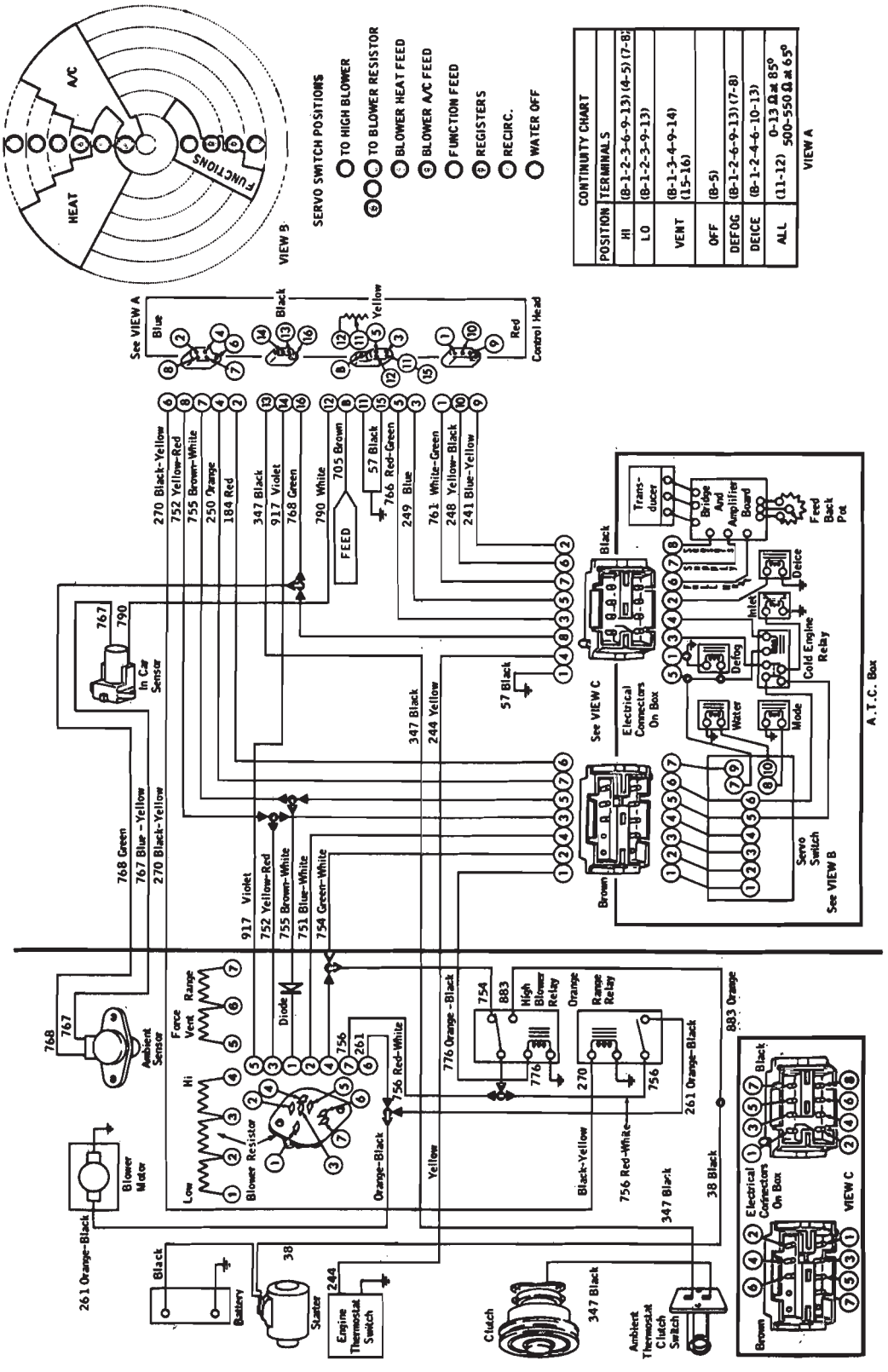

FIG. 9—Automatic Temperature Control System Electrical Diagram—Lincoln Continental

10 inches) calling for maximum air conditioning (high blower and recirculated air). As the passenger compartment cools down the passenger compartment sensor resistance values increase causing decreased transducer vacuum output. This results in the system changing from recirculated air to outside air and also in reduced blower speeds. The Temperature Blend Door (5) position will change causing some air to flow through the heater core for temperature regulation.

For mid ambient conditions, the temperature control lever should be set at 75 degrees F. and the functional control lever in **LOW**. Automatic control in **LOW** is similar to **HIGH** except that the system is locked on outside air, and there are five blower speeds instead of three.

A disturbance, such as opening the windows on a hot day, causes the sensor string resistance to drop, resulting in increased transducer vacuum output. With **HIGH** transducer vacuum output, more air conditioning is called for to counteract the hot air coming in the vehicle windows.

In **DEFOG**, system operation is the same as in **HIGH** except that outside air is used at all times and the Heat-/Defrost Door (7) is in the mid-position. In **DEICE**, an electrical signal is supplied directly to the amplifier, over-riding all other temperature signals resulting in maximum heat and high blower operation.

Temperature adjustment of individual preference in the range of 65-85 degrees is provided by the temperature control lever and rheostat. If the temperature control lever is positioned warmer, the rheostat adds resistance to the sensor string. The effect is the same as if the sensor thermistors were cooled and had more resistance. This causes an amplifier and transducer response that decreases the vacuum output. This in turn increases heater output until the sensor thermistors have become warmer and the sensor string resistance has changed to compensate for the temperature control lever adjustment. The system then regulates at the new temperature that is indicated by the temperature control lever position. A similar but opposite reaction occurs when the temperature control lever is set cooler.

Blower Motor Speed

Blower motor speed is controlled by the vacuum-operated power servo switch. With either high or low vacuum from the transducer, the switch cuts out blower resistors to provide high blower speed. As the transducer vacuum regulates between the two extremes and passenger compartment temperature approaches the temperature control lever setting, the blower voltage and speed are reduced by cutting in resistors. There are five power servo switch positions to provide five blower speeds in **LOW**. In **HIGH** the instrument panel control eliminates the two lowest switch steps and activiates a relay to cut out an additional range resistor, causing three higher blower voltages and corresponding speeds.

Power Servo

The power servo switch assembly is a vacuum actuated electrical switch in the ATC box. The switch assembly contains mechanical linkage connecting the power servo vacuum motor to the electrical switch arm and a feedback potentiometer. The vacuum motor is calibrated so that a known vacuum is required to move it to any corresponding position. The feedback potentiometer signals the amplifier the related position of the servo switch arm and the same vacuum is also provided to the Temperature Blend Door (5) vacuum motor.

The switch assembly is divided into three sections:

1. Function—Outside Air Door (1), Recirculating Air Door (2), Heater Water Valve (4), AC/Heat Door (6), Heat/Defrost Door 7a and Heat/Defrost Door 7b.
2. Blower motor control during air delivery through the floor outlets (warm air).
3. Blower motor control during air delivery through the registers (cool air).

INSTRUMENT PANEL CONTROL ASSEMBLY

Figure 3 illustrates the top and bottom views of the instrument panel control assembly. The six-position functional control lever rotary switch, and the temperature control lever and rheostat are included in the assembly.

The six-position functional control switch may be checked with a continuity tester. There should be electrical continuity between and only between the indicated terminals for each switch position. If not, the rotary switch is damaged.

The temperature lever part of the control assembly may be calibrated by varying the relationship between the temperature lever and the temperature control rheostat. Refer to Section 3, Adjustments.

TEMPERATURE SENSORS

The Automatic Temperature Control System makes use of two temperature sensing devices, called thermistors (sensors) for its operation (Fig. 10). An ambient sensor is located in the evaporator case to sense temperature of the incoming air. The second sensor is located behind a grille in the instrument panel to sense passenger compartment air temperature. The resistance of these sensors change with temperature and provide varying electrical values to the ATC box. The sensors are wired in series with the temperature control rheostat. When the combined resistance is low, the ATC box will call for air conditioning. When the combined resistance is high, the ATC box will call for heat. The ambient sensor, is encased to provide a thermal delay and prevent the system from following momentary changes in the ambient air temperature.

The passenger compartment sensor has the greatest effect on system operation. It samples the passenger compartment air drawn past it by an aspirator.

TEMPERATURE SENSORS AND CONTROL RHEOSTAT CHECK

The resistance of the passenger compartment and ambient sensors should be tested together with the control assembly rheostat to determine if they are operating properly. A quick functional check of the sensors and rheostat can be made with the engine and system operating. Move the temperature control lever to 75 degrees F. and the functional control lever to **HIGH** position for this check.

Hold a lighted match close to the passenger compartment sensor opening in the instrument panel. The system should operate on full air conditioning operation within 15 seconds. If the system does not respond to this functional check, the sensors and rheostat should be checked for proper resistance values.

Use the following procedure to determine if the sensors and rheostat are operating properly. The resistance of the sensors change with tempera-

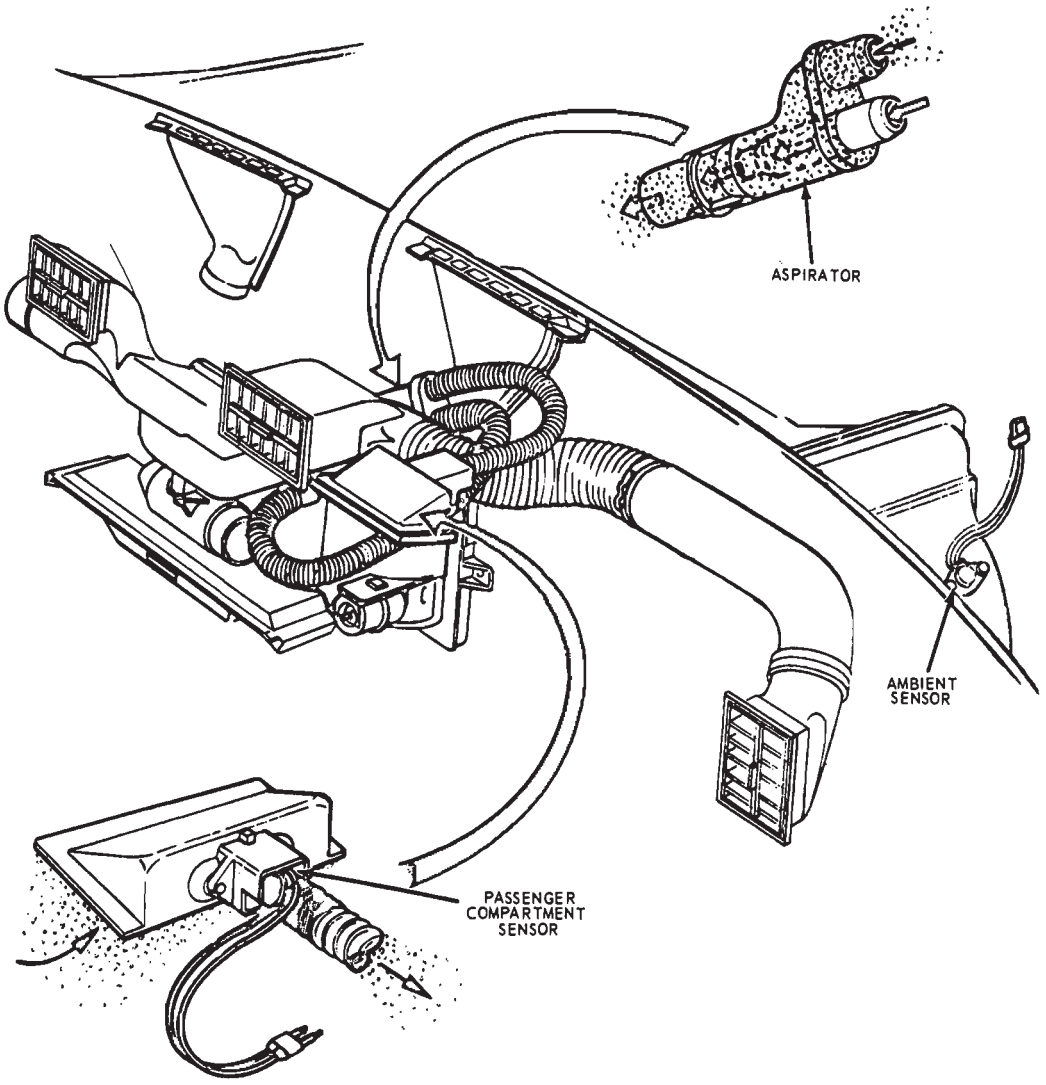

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FIG. 10—Automatic Temperature Control Sensing System Components

ture. The vehicle and sensors should be at approximately 70 degrees F. to 80 degrees F. and the temperature control rheostat should be properly adjusted for accurate test results. Refer to Adjustments, Temperature Control Rheostat.

1. Disconnect the battery. Set the functional control lever to the **OFF** position.

2. Set the temperature control lever at 75 degrees F. Disconnect the black eight pin electrical wiring connector from the ATC box. Connect an ohmmeter between the green wire of the electrical harness and ground.

3. Observe the resistance. With the ambient temperature between 70-80 degrees F., the resistance of the sensor string and rheostat should be between 1200 and 1300 ohms. If the resistance measured is somewhat higher or lower than that specified, the resistance of the individual sensors and rheostat should be checked.

4. To check the rheostat, measure total resistance with the temperature control set for 85 degrees F. Then set temperature control at 65 degrees F. and again note the resistance reading. The difference in resistance between 65 degrees F. and 85 degrees F. dial setting should be between 480 and 590 ohms. If the resistance is less than 480 ohms or more than 590 ohms, the rheostat is damaged.

5. To check the resistance of the ambient sensor, disconnect the two terminal connectors at the sensor and connect the ohmmeter across the two terminals. The resistance should be between 165 ohms and 185 ohms with an ambient temperature of approximately 70-80 degrees F.

6. To check the resistance of the passenger compartment sensor (rheostat must be satisfactorily checked out first), set the temperature control lever at 65 degrees F. and connect an ohmmeter between ground and the blue-yellow wire terminal of the two terminal wiring harness connectors to the ambient sensor. The passenger compartment sensor resistance should be between 750 ohms and 900 ohms.

SENSOR ASPIRATOR

A passenger compartment sensor aspirator is built into the air distribution system to draw a sample of passenger compartment air through an opening in the instrument panel and

past the sensor (Fig. 10). This system insures minimum sensor response time to the passenger compartment temperature changes, and samples the passenger compartment temperature at a location as close to breath-level as practical. The sensor location also provides the best balance between ambient and passenger compartment temperature.

30-AMP CIRCUIT BREAKER

The 30-amp fuse-type circuit breaker is located in the fuse panel which is mounted on the left side of the dash panel.

COMPRESSOR CLUTCH SWITCH

The compressor clutch should be engaged any time the system is turned on and the ambient switch is cut in.

ENGINE THERMOSTAT SWITCH

A circuit from the engine thermostat switch to the ATC box provides a delay in the operation of the heater system until the engine coolant has warmed enough to minimize the duration of a cold air blast from the heater ducts. In **LOW** and **HIGH** a relay in the ATC box is energized by the engine thermostat switch to prevent blower operation when heat is called for until engine coolant temperature reaches 130 degrees F.

ADJUSTMENTS

VACUUM MOTORS

Refer to the Manual A/C—Heater System, Adjustments, Group 16-02.

INSTRUMENT PANEL CONTROL ASSEMBLY

Temperature Control Rheostat

The temperature control rheostat may be adjusted as follows:

1. Disconnect the harness yellow connector from the wiring harness.
2. Connect an ohmmeter to the black and the white leads of the two wire connector.
3. Set the temperature lever at 75 degrees F.
4. Loosen the screws holding the linear rheostat.
5. Adjust the rheostat by moving it until the ohmmeter reads 268 ohms with the control lever positioned at 75 degrees F.
6. Tighten the two rheostat mounting screws and check to make sure that the temperature setting has remained at 75 degrees F. and the rheostat resistance is 268 ohms.

ATC BOX

Temperature Calibration

A temperature calibration control is located on the face of the ATC box which provides approximately 30 degrees F. of adjustment. This control is preset at the center of the adjustment range at the factory. In case of customer complaints, it may be altered to suit individual owner preference. If the vehicle is said to be too cool for a given temperature dial setting, rotate the control in the direction indicated by the curved arrow and the **warmer** notation (clockwise). If the vehicle is said to be too warm, rotate the control in the opposite direction. Be sure to mark the original control setting before readjustment. Each calibration division is approximately 2 degrees F.

If the automatic temperature control system is not operating properly, the ATC box calibration control should not be adjusted. This calibration control is included to compensate for variations in the ATC box temperature sensors, and control assembly rheostat.

After servicing, and with the automatic temperature control system operating correctly, tape an accurate thermometer to the padded instrument panel to measure temperatures at the passenger compartment sensor opening. Set the temperature control 75 degrees F., slide the control lever to **HIGH** and operate the system until the temperature within the vehicle has stabilized. This check should be made with the vehicle driven at approximately 40 miles per hour. Note the stabilized thermometer temperature reading. To satisfy the average driver, the thermometer should read approximately 80 degrees F. for 75 degrees F. dial setting. The system is designed for this initial calibration. If necessary, readjust and again operate the vehicle at approximately 40 miles per hour and note the stabilized temperature again. A minor calibration adjustment may be necessary to complete the temperature calibration.

REMOVAL AND INSTALLATION

For removal and installation procedures other than those listed here, refer to Part 34-04, Section 7.

ATC BOX

Removal

1. Disconnect the parking brake support bracket and move the brake and cable away from the left cowl side panel (Fig. 11).
2. Remove the left cowl side trim panel.
3. Disconnect the vacuum harness and two electrical harnesses from the ATC box.
4. Remove six ATC box-to-cowl side mounting screws and pull the box inboard away from the cowl side panel.
5. Remove the four ATC box cover clips and remove the cover.

Installation

1. Insert the ATC unit into the box cover and install the four clips (Fig. 11).
2. Apply body sealer on the mounting flange of the ATC box to provide a positive seal to the cowl panel.
3. Position the ATC box assembly in the cowl panel opening and install the six ATC box-to-cowl panel mounting screws.
4. Connect the two electrical harnesses and the vacuum harness to the ATC junction blocks.
5. Install the left cowl side trim panel.
6. Install the parking brake support bracket.

CONTROL ASSEMBLY

Refer to Standard Heater System, Removal and Installation, Group 34-03.

During installation, disconnect five electrical connectors from control switch and rheostat.

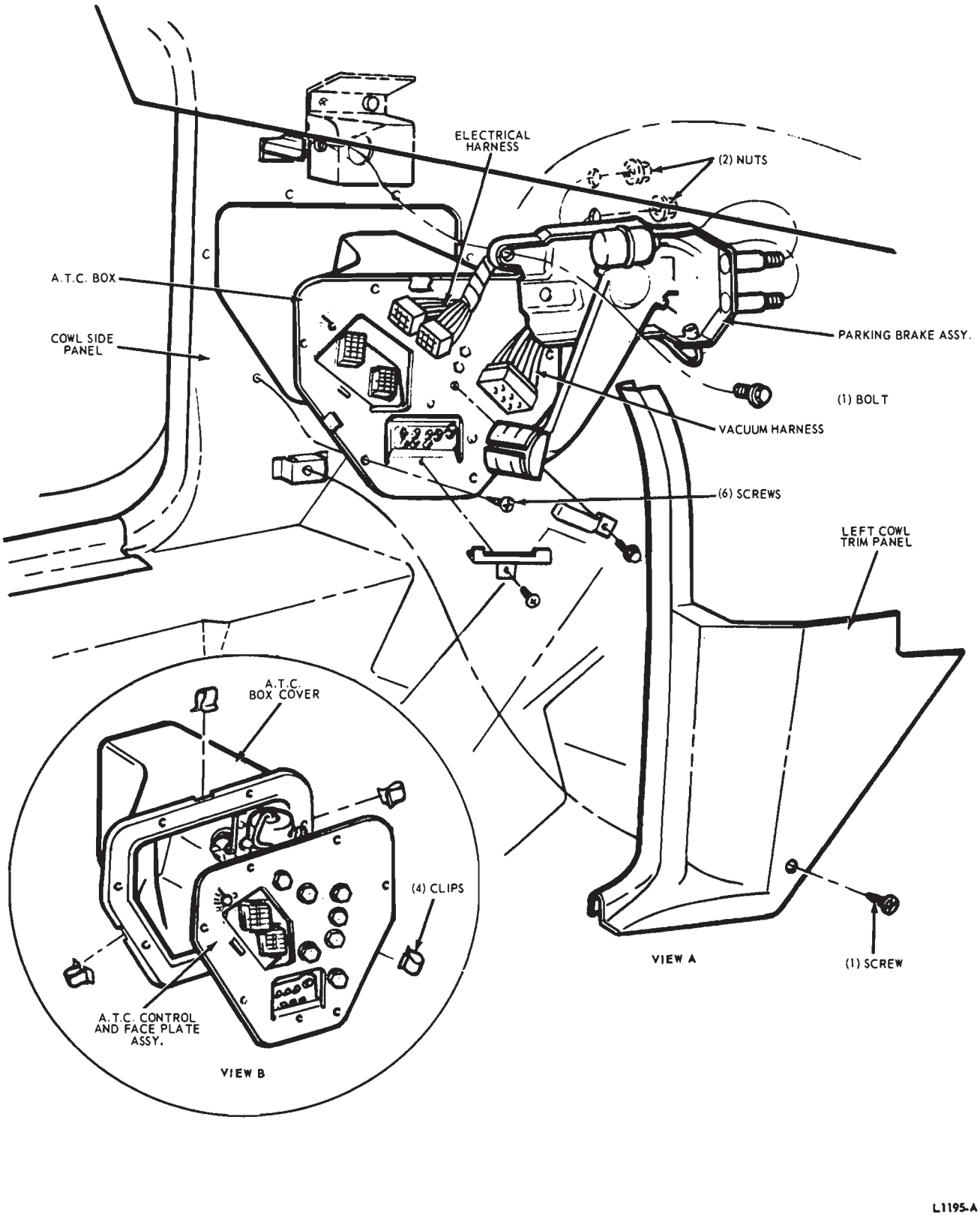


FIG. 11—A.T.C. Box Removal—Lincoln Continental

2 THUNDERBIRD AND CONTINENTAL MARK III

DESCRIPTION AND OPERATION

The Automatic Climate Control includes a functional control lever for HIGH, LOW, OFF, DE-FOG and DE-ICE and a temperature control lever. The controls are located to the left of the steering column. The desired temperature is selected by sliding the temperature lever to any position on the dial, and has a range between 65 and 85 degrees.

The Automatic Climate Control System (Fig. 12) will automatically control the temperature and blower speed, and will reduce the relative humudity of air inside the car. The operator need only set a dial at the desired temperature and select a control position and the system will deliver dry heated or cooled air, to maintain the car interior at the temperature selected. The system will maintain the set comfort level automatically regardless of the weather and requires little or no change in the setting to compensate for changes due to outside weather conditions.

During operation, outside air is drawn from the cowl vent just below the windshield at all times, except at maximum cooling when recirculating air is used.

The system utilizes what is called a reheat system. With this type of system all airflow from the blower passes through the evaporator core first, removing excess moisture from the air. This removal of excess moisture from the air, particularly when traveling in humid weather, limits window fogging and interior condensation. Temperature is then regulated by reheating the cooled air to the desired temperature. Temperature of the outlet air is varied by the temperature blend door (5) which governs the flow of cooled air through and/or around the heater core. The air is mixed in the distribution plenum. From here it is diverted to the heater outlets, the defroster nozzles, or the air conditioner registers.

WARM AIR OPERATION

If the interior temperature is below the dial setting and warmer air is required to maintain the desired temperature level, the air is distributed through openings at the bottom of the unit for the front passenger compartment. A duct is located over the tunnel to direct heater air at floor level to the rear seat area. Air for defroster operation is distributed through two defroster ducts onto the windshield at minimum heat only. Air for defog operation is split between floor outlets and defroster nozzles. Provision is made to delay the operation of the system until the engine coolant has warmed enough to minimize the duration of a cold air blast from the heater outlets.

COOL AIR OPERATION

If the interior temperature of the car is above the temperature setting on the dial, and cooler air is required to maintain the desired air temperature level, the air is distributed through the four adjustable registers on the instrument panel. The system goes into operation, regardless of engine coolant temperature. This is done to provide a rapid cool-down rate.

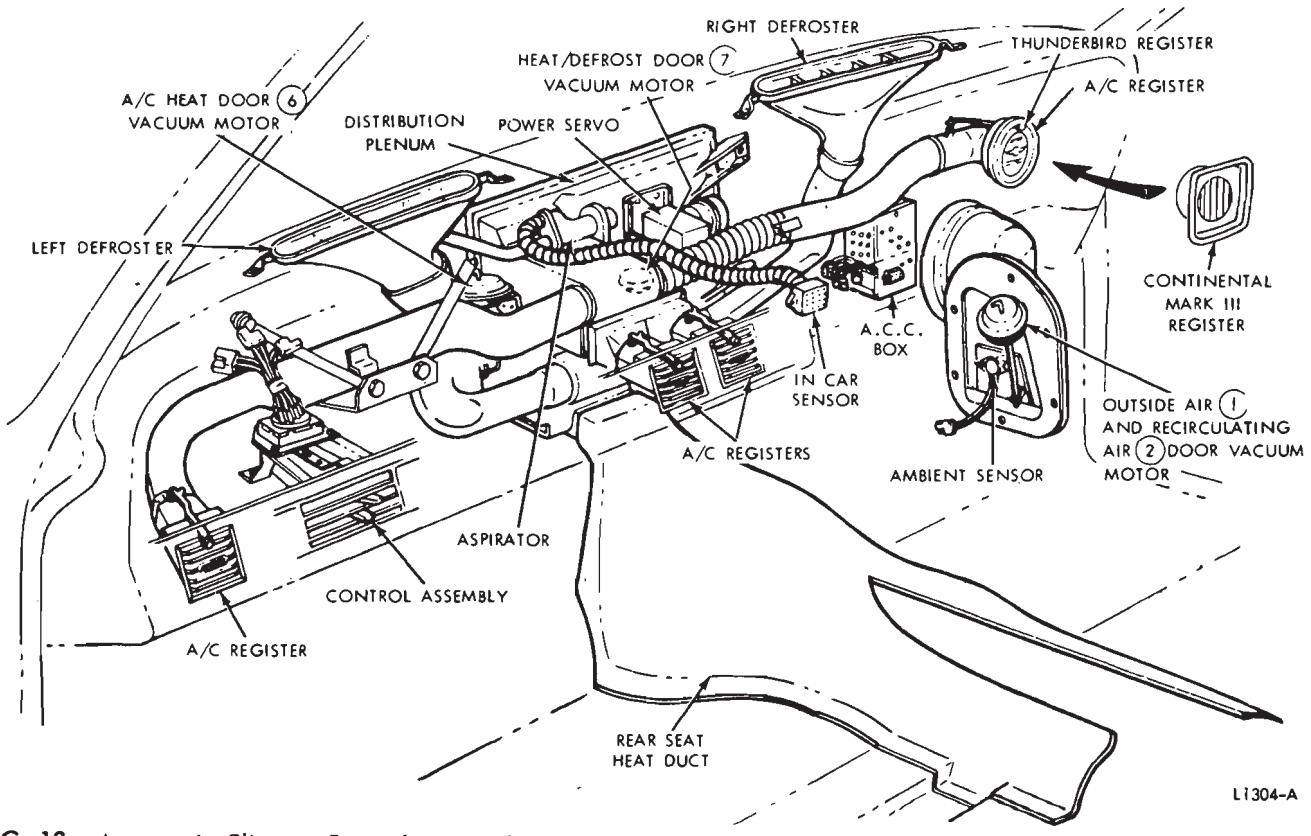


FIG. 12—Automatic Climate Control Assembly—Thunderbird and Continental Mark III

CONTROL OPERATION

The Automatic Climate Control (A.C.C.) system includes a functional control lever for HIGH, LOW, OFF, DE-FOG and DE-ICE and a temperature control lever. The controls are located to the left of the steering column (Fig. 13).

Three temperature sensors are used. An outside air temperature sensor is mounted on the outside air (1) and recirculting air (2) door in the right air intake. Another temperature sensor is located in the instrument panel and senses the car interior temperature. The third sensor is clamped to the water pump by-pass hose and senses engine coolant temperature.

Temperature Control Lever

The temperature control lever in the instrument panel controls a variable resistor. The variable resistor sends electrical signals to the A.C.C. box, which in turn, applies vacuum to the temperature blend door (5) vacuum motor. This action controls the amount of reheating of the incoming precooled air. The interior air temperature can be automatically maintained anywhere between 65 degrees F and 85 degrees F.

Functional Control Lever Off Position

With the functional control lever in the OFF position, the blower motor is off, the outside air (1) and recirculating air (2) door is closed to the outside air, the heater water valve (4) is open, and the system is inoperative.

Low Position

With the lever in the LOW position, the system selects fresh air for heating, or cooling, and automatically adjusts the air flow with any one of five blower speeds. The blower speed selected, depends on the difference between the temperature setting of the temperature lever and the car interior air temperature. A high temperature difference provides a higher blower speed than that for a low temperature difference.

High Position

System operation with the lever in HIGH position is similar to LOW except for blower motor speed and the use of recirculated air when maximum air conditioning is required. With the system in HIGH, blower motor speed is selected from three speeds which are somewhat higher than the five speeds used in LOW, to provide for optimum system performance in temperature extremes. The highest speed is automatically selected and as the temperature approaches the pre-set level, the system switches to fresh air operation and the blower motor speed and the intensity of the heated or cooled air are lowered to maintain the pre-set temperature.

The system remains on recirculating air for all cooling operations. Also the water valve is shut off when maximum cooling is called for.

In LOW and HIGH, with heater-type operation, approximately 10 percent of the heater air is diverted from the heat duct to the defroster outlet to keep the windshield clear. No air is directed to the windshield in air conditioning-type (cooling) operation.

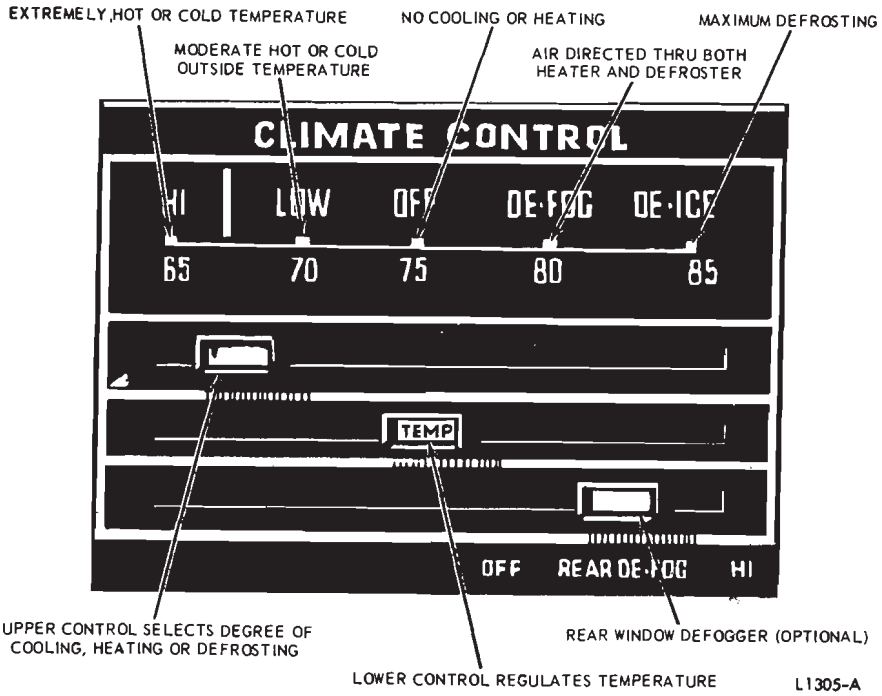


FIG. 13—Controls For Automatic Climate Control—Thunderbird and Continental Mark III

De-Fog Position

With the slide lever in DE-FOG position, the system operation is the same as in HIGH except that the airflow is split. An airflow of 40 percent is discharged from the defroster nozzles, and 60 percent is discharged from the floor outlets, rather than the air conditioning registers. There is no water warm-up and blower delay in DE-FOG. The temperature is controlled automatically.

De-Ice Position

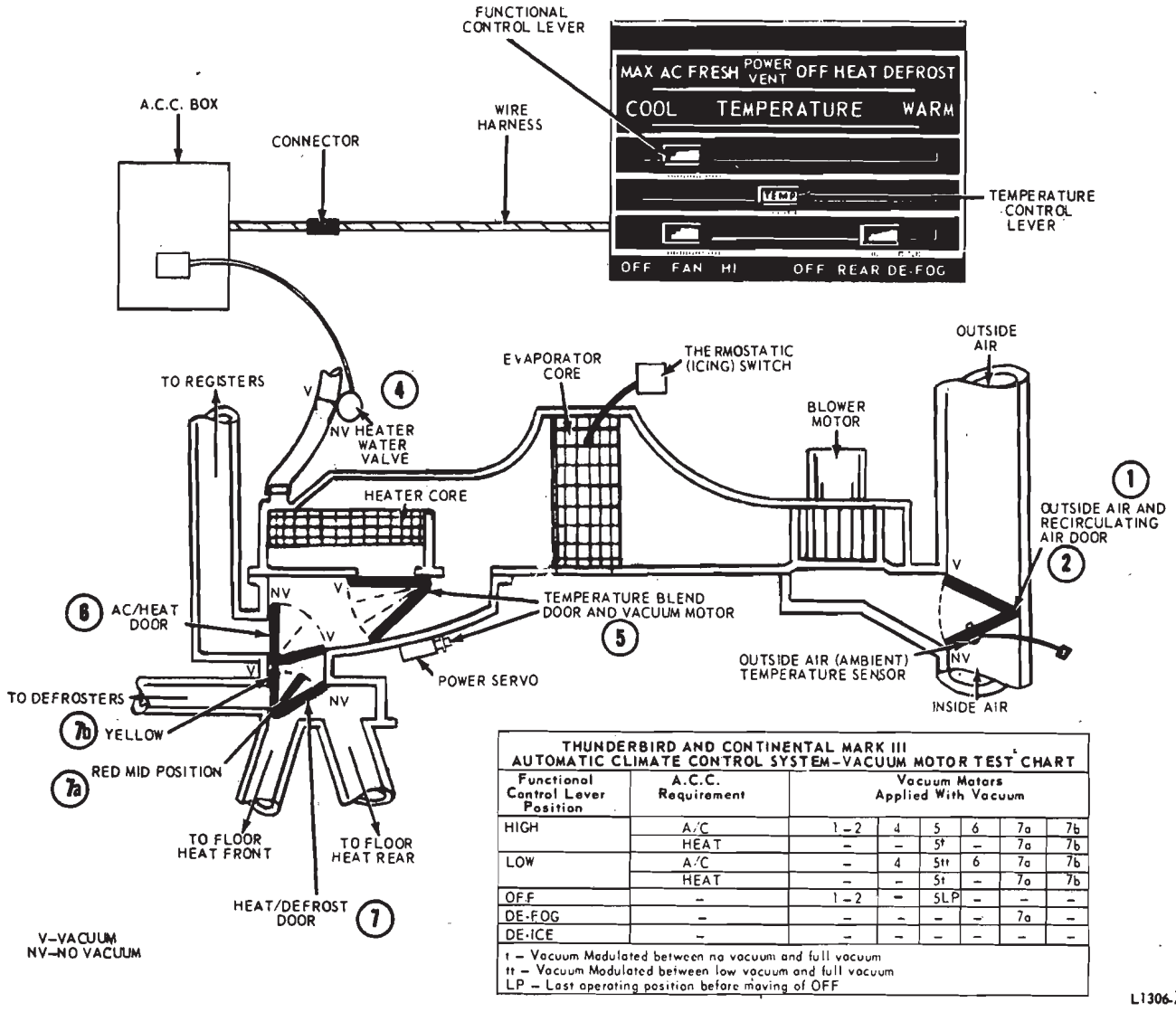
With the functional control lever in DE-ICE position, the system selects the maximum heat available at the highest blower speed and the air is discharged from the defroster nozzles. In DE-ICE approximately 10 percent of the airflow is directed to the heat ducts.

Fig. 14 shows air door, valve positions and vacuum application for the various control lever positions.

VACUUM CONTROL SYSTEM

The vacuum control system (Fig. 15) consists of a vacuum supply tank and integral check valve, a vacuum motor actuated heater water valve (4), three vacuum motor actuated air doors, A.C.C. box (Automatic Climate Control), a vacuum motor actuated power servo (temperature blend door (5) vacuum motor) and the required vacuum tubing and junction blocks to connect the components. The vacuum reservoir and integral check valve is located on the front of the left fender apron.

The controls on the instrument panel provide electrical signals to the A.C.C. box. The A.C.C. box, in turn, supplies vacuum signals (application) through the applicable color coded vacuum hoses to the required vacuum



THUNDERBIRD AND CONTINENTAL MARK III
AUTOMATIC CLIMATE CONTROL SYSTEM-VACUUM MOTOR TEST CHART

Functional Control Lever Position	A.C.C. Requirement	Vacuum Motors Applied With Vacuum					
HIGH	A/C	1-2	4	5	6	7a	7b
	HEAT	-	-	5†	-	7a	7b
LOW	A/C	-	4	5††	6	7a	7b
	HEAT	-	-	5†	-	7a	7b
OFF	-	1-2	-	5LP	-	-	-
DE-FOG	-	-	-	-	-	7a	-
DE-ICE	-	-	-	-	-	-	-

† - Vacuum Modulated between no vacuum and full vacuum
†† - Vacuum Modulated between low vacuum and full vacuum
LP - Last operating position before moving of OFF

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FIG. 14—A.C.C. Control Setting Vacuum Motor Application Chart—Thunderbird and Continental Mark III

motors and power servo which open and close the respective air doors.

The AC/heat door (6) and outside air (1) and recirculating air (2) door vacuum motors are two-position motors. The heat/defrost door (7) vacuum motor is a three-position motor. The temperature blend door (5) vacuum motor may be set at any position within the limits of its travel, depending on the amount of vacuum supplied from the A.C.C. box. The temperature blend door (5) vacuum motor also sets the blower speed.

The position of the temperature blend door (5) changes automatically to maintain the temperature selected on the dial; at the same time, blower speeds are reduced. If the in-vehicle temperature rises above the dial setting, the temperature blend door (5) moves to admit more cool air and less warm air. If the in-vehicle temperature drops below the dial setting, the temperature blend door (5) moves to admit more warm air and less cool air. As maximum heating or cooling operation is approached, blower speeds are automatically increased.

TESTING

Fig. 16 gives an electrical schematic of the automatic climate control system. Use Figs. 14 and 16 as aids in performing the following tests:

TEMPERATURE SENSORS AND RHEOSTAT TEST

The following test is to be used to determine if the air temperature sensors, the temperature control lever rheostat and the interconnecting wiring are operating properly. All three of these components are connected in series between the A.C.C. box and ground.

The vehicle and sensors must be at approximately 70 degrees F to 80 degrees F. for an accurate test. Set the temperature control lever at 75 degrees. Disconnect the red electrical wiring connector from the A.C.C. box. Connect the Rotunda ohmmeter between the green wire terminal of the electrical harness and the vehicle body. Observe the resistance.

With the surrounding air temperature between 70 degrees F. and 80 degrees F., the resistance of the sensor string and rheostat should be between 1200 and 1300 ohms. If the re-

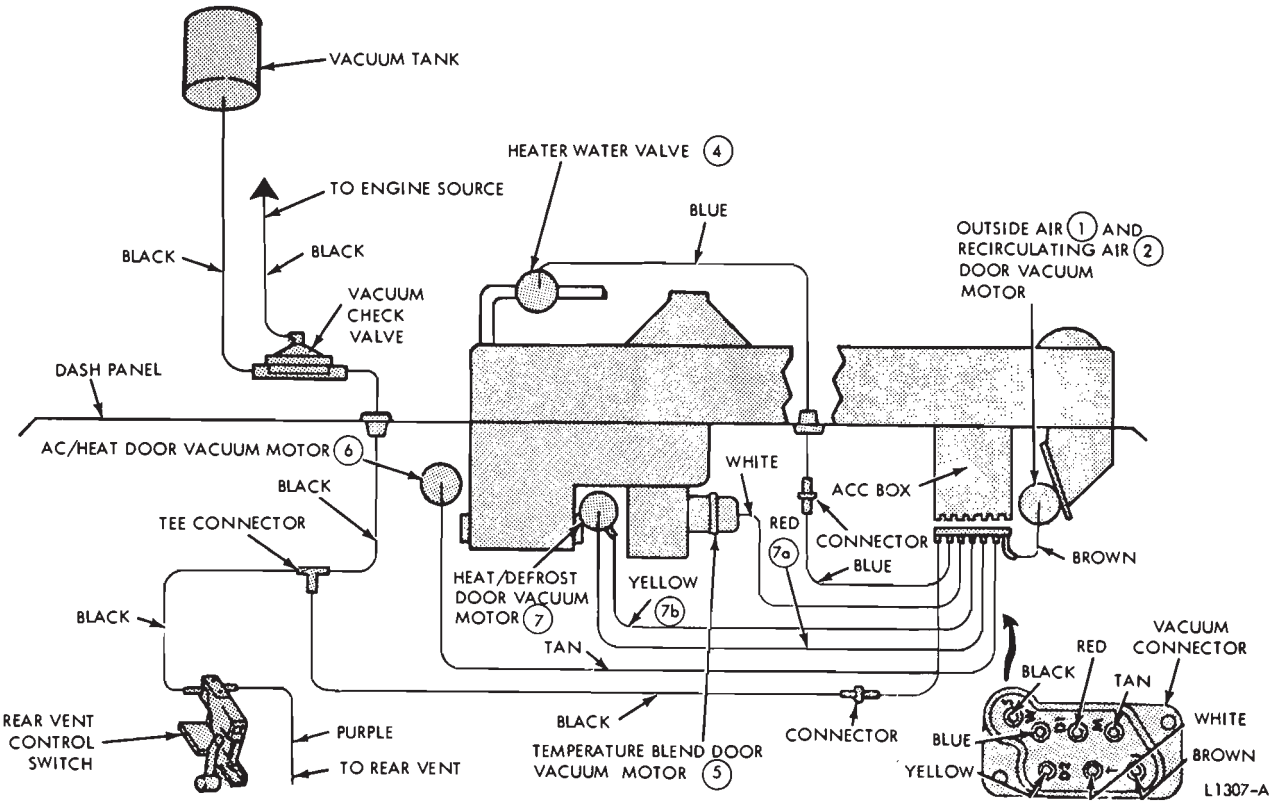


FIG. 15—Automatic Climate Control Vacuum System Schematic—Thunderbird and Continental Mark III

sistance measured is somewhat higher or lower than that specified, check the resistance of the individual sensors and the rheostat. If the sensors and rheostat check out correctly, the interconnecting wire is loose or disconnected.

OUTSIDE AIR (AMBIENT) TEMPERATURE SENSOR TEST

Disconnect the two terminal connectors at the sensor on the outside air (1) and recirculating air door (2), and connect the ohmmeter across the two terminals. The resistance should be between 165 ohms and 185 ohms with a surrounding (ambient) temperature of approximately 70 degrees F. to 80 degrees F.

TEMPERATURE CONTROL RHEOSTAT TEST

Use the Rotunda ARE 27-42 ohmmeter and measure the total resistance of the disconnected rheostat with the temperature control set for 85 degrees. Then set the temperature control at 65 degrees and again note the resistance reading. The difference in resistance between the 65 degrees and 85 degrees dial setting should be between 400 and 500 ohms. If the difference in resistance is less than 400 ohms, the rheostat does not have the right resistance value or has a loose shaft set screw. If the resistance difference is more than 500 ohms, the rheostat does not have the right resistance value.

IN-CAR AIR TEMPERATURE SENSOR TEST

Disconnect the wiring connector from the ambient temperature sensor located on the recirc-inlet air door. Connect an ohmmeter between the blue wire at the ambient temperature sensor connector and the white wire connector at the rheostat connector.

The in-car sensor resistance should be between 750 ohms and 900 ohms. If the test shows infinite resistance, the wiring to the sensor is not connected or the sensor is broken.

FUNCTIONAL CONTROL SWITCH TEST

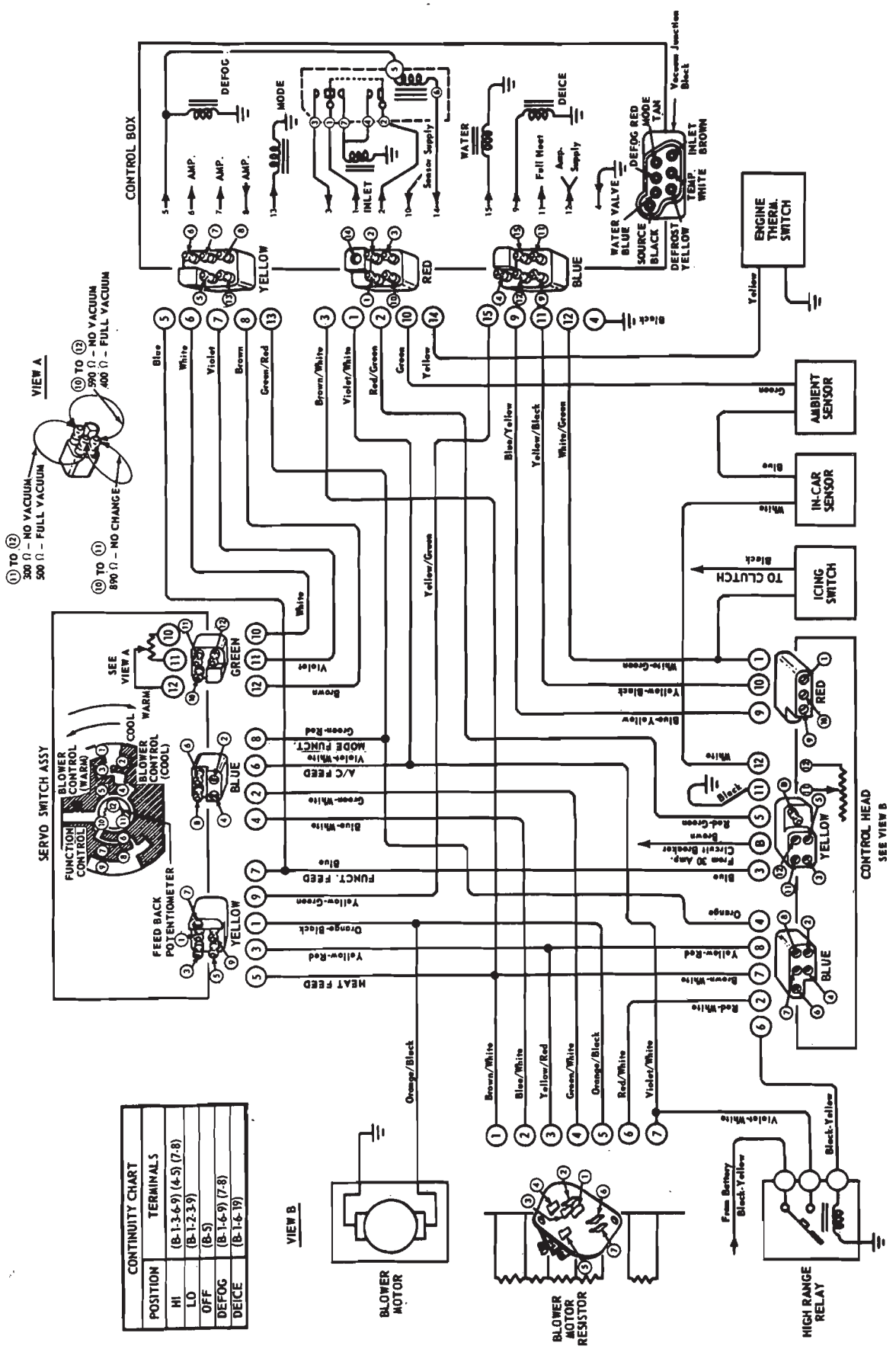
The five position switch may be checked with a continuity tester. Use an ohmmeter or self powered test light. There should be electrical continuity between the indicated terminals for each switch position as shown in Fig. 17. If not, the rotary switch is not operating properly.

HIGH RANGE RELAY TEST

The high range relay is located on the right fender apron close to the dash panel. The relay, when energized, by-passes the control head switch and the low range resistor, and supplies power directly to the A/C portion of the temperature blend door (5) power servo switch blower control and also to the heat portion of the switch by way of the cold engine relay in the A.C.C. box.

If the relay is not operating properly, there will be no blower speed change when shifting the functional control lever from low to high when the power servo switch is calling for higher blower speed. To check this, set the temperature control lever for maximum heating or maximum cooling.

If the blower does operate, but there is no change in speed as the functional control lever is moved from low to high, or vice versa, it indicates that the relay or its associated wiring is not functioning properly.



L1308-A

FIG. 16—Automatic Climate Control Electrical Schematic

SWITCH POSITION	CONTINUITY BETWEEN	
OFF	Brown Wire in yellow connector	Red-Green wire in yellow connector
HIGH	Brown wire in yellow connector	Blue wire in yellow connector White-Green wire in red connector Blue-yellow wire in red connector Black-Yellow wire in blue connector
LOW	Brown wire in yellow connector	White-Green wire in red connector Blue-Yellow wire in red connector Red-White wire in blue connector Blue wire in yellow connector
DE-FOG	Brown wire in yellow connector	White-Green wire in red connector Blue-Yellow wire in red connector Black-Yellow wire in blue connector
	Violet-White wire in blue connector	Yellow-Red wire in blue connector
DE-ICE	Brown wire in yellow connector	Black-Yellow wire in blue connector White-Green wire in red connector Yellow-Black wire in red connector

CL1270-A

FIG. 17—Functional Control Switch Test

HEATER WATER VALVE (4) TEST

The heater water valve (4) is used to cut off the flow of engine coolant through the heater core when the A.C.C. box and power servo calls for maximum air conditioning with recirculated air. The valve is open in the OFF position.

To check the heater water valve (4), set the temperature control for 85 degrees. With the functional control lever set at LOW, run the engine until the water is warm. Check for the proper temperature blend door (5) vacuum motor position; it should be between the mid and full vacuum position. Warm air should be discharged from the heater ducts. If the air is not warm, check the heater water valve (4) by removing the 1/8 inch vacuum line from the valve and noting if a vacuum is available. If vacuum is available and no heat is noted, the heater water valve (4) should be replaced.

BLOWER MOTOR CURRENT DRAW TEST

Connect a 0-50 ammeter between the positive post of the battery and the blower motor orange wire. The motor should operate. The current draw should be approximately 17-23 amperes.

A.C.C. CONTROL BOX TEST

Figure 18 gives the procedures for testing the A.C.C. control box.

POWER SERVO TEST

Figure 19 gives the procedures for testing the power servo.

ADJUSTMENTS

VACUUM MOTOR ADJUSTMENTS

Temperature Blend Door (5) Power Servo

Loosen the three mounting screws. Push the servo firmly toward the dash so that the crank arm pressure is applied to the connecting link on the door. Hold the servo in this position and tighten the mounting screws.

AC/Heat Door (6) and Outside Air (1) and Recirculating Air (2) Door Vacuum Motor

Loosen the adjusting screws on the vacuum motor shaft. Make certain that there is no vacuum applied. Hold the door in the normal position (AC/Heat door (6) crank maximum clockwise, outside air (1) and recirculating air (2) door closed). Adjust the motor shaft so that the door seals in both positions for the outside air (1) and recirculating air (2) door and the preload notch is flush with the motor body for the AC/Heat door (6). Tighten the adjusting screw.

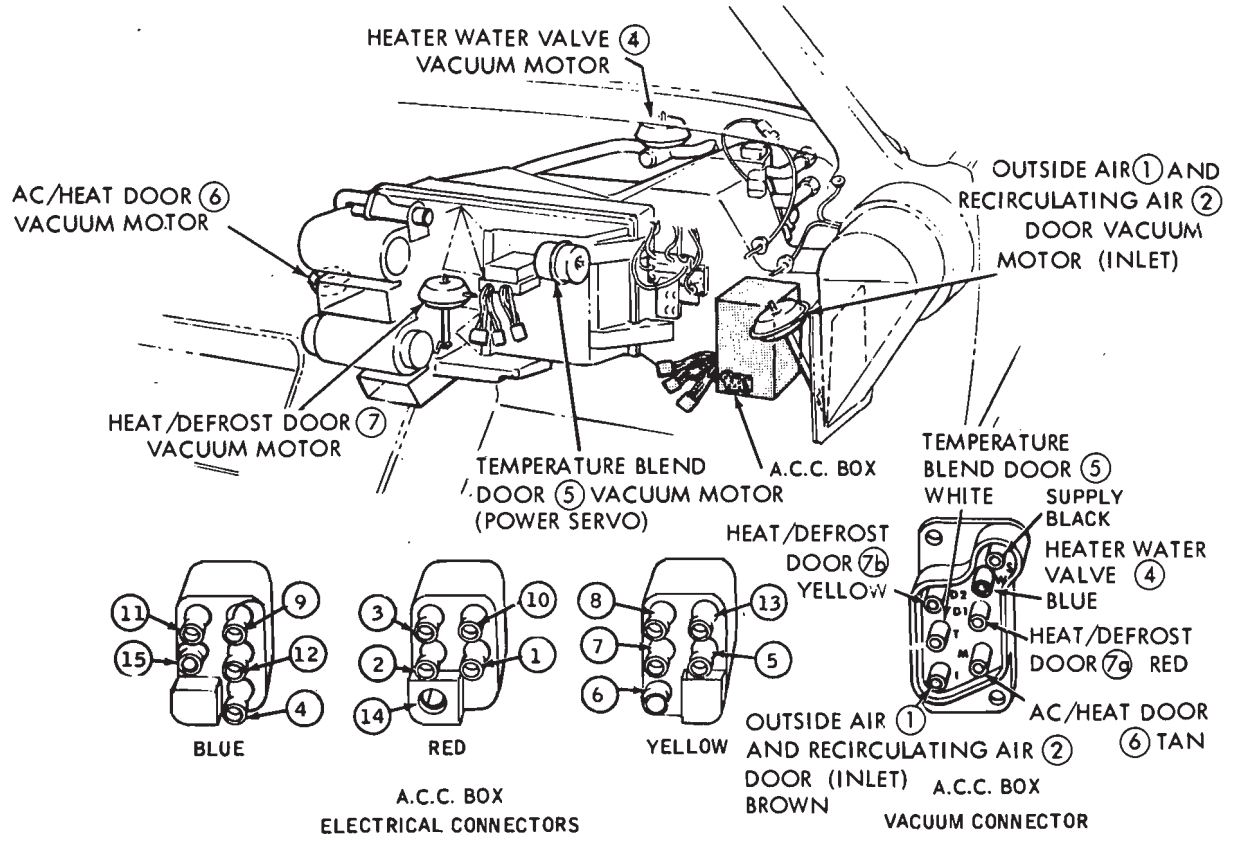
Heat/Defrost Door (7) Vacuum Motor

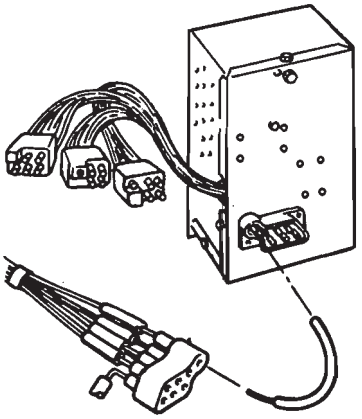
The heat/defrost door (7) vacuum motor cannot be adjusted.

A.C.C. BOX TEMPERATURE CALIBRATION

A temperature calibration control is located on the bottom of the A.C.C. (Automatic climate control). box which provides approximately 30 degrees F. of adjustment. This control is pre-set at the center of the adjustment range at the factory.

If the system is not operating properly, the A.C.C. box calibration control should not be adjusted. This calibration control is included to compensate for variations in the A.C.C.



TEST	OPERATION	VISUAL-AUDIBLE CHECK
EQUIPMENT 1 - 6 inch jumper wire with alligator clip on one end and double female connector on other end.  1 - Jumper wire for ground, 3' long with alligator clip on each end.  1 - 12 volt jumper wire, 3' long with female connector on one end and alligator clip on other end  1 - Vacuum gauge 1-1/8" x 2' long vacuum hose 2 - 374680-S - Vacuum connectors 1 - 1/8" x 3" vacuum hose	Remove glove comportment liner to improve accessibility to A.C.C box. Ground A.C.C. box Disconnect the three electrical multiple connectors from A.C.C. box Disconnect vacuum harness from A.C.C. box Connect short vacuum supply jumper hose between harness and A.C.C. box ("S" black) 	 INDICATES SATISFACTORY PERFORMANCE 

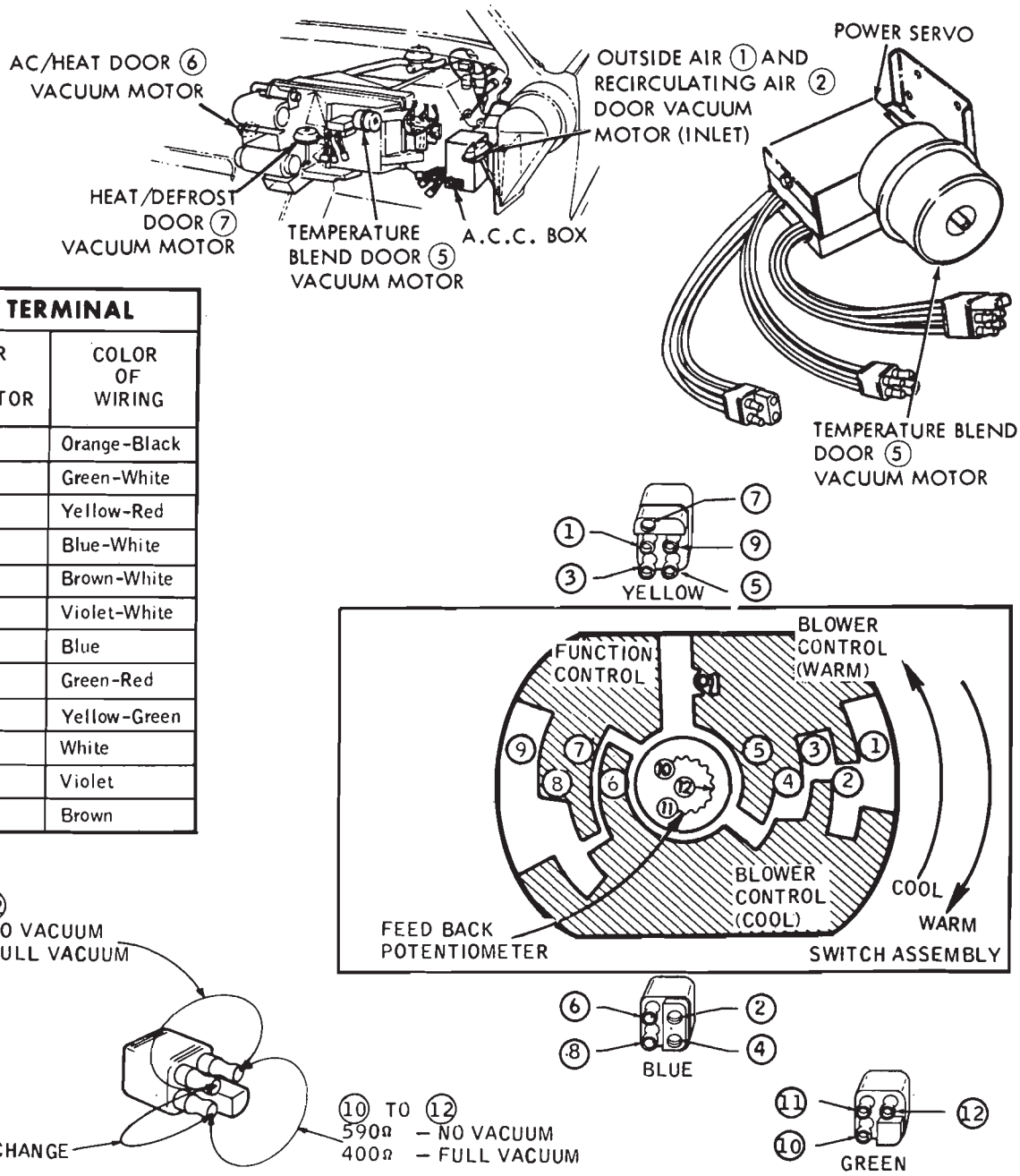
L1309-A1

FIG. 18—A.C.C. Control Box Test—Thunderbird and Continental Mark III

(1) Check outside air (1) and recirculating air (2) door solenoid Ability of box to operate the outside air (1) and recirculating air (2) door vacuum motor	Apply 12 volts to terminal #2 (red connector) Connect vacuum gauge to vacuum port I on A.C.C. box	A solenoid click should be heard in A.C.C. box and vacuum indicated on gauge
(2) Check defog (7a) solenoid Ability of box to operate defog (7a) portion of heat/defrost door (7) vacuum motor	Apply 12 volts to terminal #5 (yellow connector) Connect vacuum gauge to port D1	A solenoid click should be heard in A.C.C. box and vacuum indicated on gauge
(3) Check de-ice (7b) solenoid Ability of box to operate de-ice (7b) heat/defrost door (7) vacuum motor	Apply 12 volts to terminal #9 (blue connector) Connect vacuum gauge to port D2	A solenoid click should be heard in A.C.C. box and vacuum indicated on gauge
(4) Check AC/heat (6) solenoid Ability of box to operate AC/heat door (6) vacuum motor	Apply 12 volts to terminal #13 (yellow connector) Connect vacuum gauge to port M	A solenoid click should be heard in A.C.C. box and vacuum indicated on gauge
(5) Check heater water valve (4) solenoid Ability of solenoid to operate the heater water valve (4) vacuum motor	Apply 12 volts to terminal #15 (blue connector) Connect vacuum gauge to port W	A solenoid click should be heard and vacuum indicated on gauge
(6) Check operation of cold water blower cut off relay	Apply 12 volts to terminal #5 (yellow connector) and ground terminal #14 (red connector)	A relay click should be heard in A.C.C. box when grounding wire
(7) Check transducer ABILITY TO HEAT	Connect the yellow multiple connector on harness to box Connect vacuum gauge to port T Apply 12 volts to terminal #12	No vacuum reading on gauge
AND	THEN	
ABILITY TO COOL	Ground terminal #10 (red connector)	Full vacuum reading on gauge
If the A.C.C. box fails to pass any one of the above tests, the box is bad and should be replaced. If the box passes all the tests, there probably is trouble elsewhere in the system	Connect the red and blue multiple connectors on harness to box Connect vacuum harness to box Install glove compartment liner	

L1309-A2

FIG. 18—A.C.C. Control Box Test—Thunderbird and Continental Mark III (Continued)



WIRING TERMINAL		
NO.	COLOR OF CONNECTOR	COLOR OF WIRING
(1)	Yellow	Orange-Black
(2)	Blue	Green-White
(3)	Yellow	Yellow-Red
(4)	Blue	Blue-White
(5)	Yellow	Brown-White
(6)	Blue	Violet-White
(7)	Yellow	Blue
(8)	Blue	Green-Red
(9)	Yellow	Yellow-Green
(10)	Green	White
(11)	Green	Violet
(12)	Green	Brown

TEST	OPERATION	VISUAL CHECK
EQUIPMENT 1 OHMMETER 1 CONTINUITY LIGHT OUTSIDE VACUUM SOURCE	DISCONNECT THREE MULTIPLE CONNECTORS FROM POWER SERVO (GREEN-BLUE-YELLOW) USE OUTSIDE VACUUM SOURCE	
❶ CHECK POTENTIOMETER FOR OPENS OR SHORTS	CHECK RESISTANCE FROM TERMINALS (10) TO (11), (11) TO (12) AND (10) TO (12) CHECK WITH NO VACUUM AND THEN WITH VACUUM	RESISTANCE SHOULD BE AS SHOWN ±10% or ±60 OHMS WHICHEVER IS GREATER

L1310-A1

FIG. 19—Power Servo Test—Thunderbird and Continental Mark III

② CHECK POTENTIOMETER FOR WEAR	CHECK RESISTANCE FROM TERMINALS ⑫ TO ⑩, OR FROM ⑫ TO ⑪ WHILE VACUUM IS SLOWLY INCREASING FROM ZERO TO MAXIMUM	READINGS SHOULD BE SMOOTH AND CONTINUOUS
③ CHECK SWITCH FOR OPENS OR SHORTS	CHECK RESISTANCE FROM TERMINALS ⑩ - ⑪ OR ⑫ TO GROUND AND TO ALL TERMINALS OF YELLOW AND BLUE CONNECTORS	ALL READINGS SHOULD BE OPEN (ONE MEGOHM OR HIGHER)
④ CHECK SWITCH FOR WARM OPERATION WITH NO VACUUM	CHECK CONTINUITY FROM TERMINAL = ⑤ TO TERMINALS = ① - ② - ③ - ④ AND ⑥	CONTINUITY SHOULD EXIST TO TERMINALS = ① - ② - ③ AND ④ BUT TO = ⑥ SHOULD BE OPEN
⑤ CHECK SWITCH FOR WARM OPERATION WITH INCREASING AND DECREASING VACUUM	CHECK CONTINUITY FROM TERMINAL = ⑤ TO TERMINALS = ① - ② - ③ AND ④ WHILE VACUUM IS SLOWLY INCREASED	CIRCUITS = ⑤ TO ①, ⑤ TO ② ⑤ TO ③ AND ⑤ TO ④ SHOULD OPEN RESPECTIVELY IN SEQUENCE. = ④ SHOULD OPEN BEFORE THE CRANK REACHES MIDWAY POSITION. THE REVERSE SHOULD OCCUR AS VACUUM IS DECREASED.
⑥ CHECK SWITCH FOR COOL OPERATION WITH NO VACUUM	CHECK CONTINUITY FROM TERMINAL = ⑥ TO TERMINALS = ① - ② - ③ - ④ AND ⑤	ALL FIVE CIRCUIT CHECKS SHOULD SHOW OPEN
⑦ CHECK SWITCH FOR COOL OPERATION WITH INCREASED AND DECREASED VACUUM	CHECK CONTINUITY FROM TERMINAL = ⑥ TO TERMINALS = ① - ② - ③ AND ④ WHILE VACUUM IS SLOWLY INCREASING	CIRCUITS = ⑥ TO ④, ⑥ TO ③, ⑥ TO ② AND ⑥ TO ① SHOULD CLOSE RESPECTIVELY IN SEQUENCE. = ④ SHOULD CLOSE JUST AFTER THE CRANK ARM REACHES MID-POSITION.
⑧ CHECK SWITCH FOR FUNCTIONAL OPERATION AT HIGH VACUUM	CHECK CONTINUITY FROM TERMINAL = ⑦ TO ⑧, ⑦ TO ⑨ AND ⑧ TO ⑨	CONTINUITY SHOULD EXIST BETWEEN TERMINALS ⑦ AND ⑧, ⑦ AND ⑨, AND ⑧ AND ⑨. NO CONTINUITY SHOULD EXIST BETWEEN THESE THREE TERMINALS AND OTHER TERMINAL
⑨ CHECK SWITCH FOR FUNCTIONAL OPERATION WHILE GOING TO ZERO VACUUM	CHECK CONTINUITY FROM TERMINAL = ⑦ TO ⑧, ⑦ TO ⑨ AND ⑧ TO ⑨ AS VACUUM IS SLOWLY DECREASED TO ZERO CONTINUITY BETWEEN ⑧ AND ⑨ SHOULD BE CONTINUOUS	CONTINUITY BETWEEN # ⑦ AND ⑧ ⑨ SHOULD OPEN ABOUT MIDWAY POSITION OF CRANK ARM MOVEMENT FROM THERE ON TO ZERO VACUUM, THE CRANK ARM SHOULD MOVE AND THE ⑦ CIRCUIT SHOULD REMAIN OPEN
⑩ CHECK # 13 WIRE (YELLOW-GREEN)	CHECK CONTINUITY FROM = ⑬ TO ⑦, ⑬ TO ⑧ AND ⑬ TO ⑨	CONTINUITY BETWEEN # ⑬ AND ⑦, ⑨ AND ⑨ SHOULD OPEN SOON AFTER CRANK ARM STARTS TO MOVE L1310-A2

FIG. 19—Power Servo Test—Thunderbird and Continental Mark III (Continued)

box temperature sensors, and control assembly rheostat.

After servicing and with the system operating correctly, tape an accurate thermometer to the padded instrument panel to measure temperatures at the in-vehicle sensor opening. Set the temperature control to 75 degrees F., slide the control lever to HIGH and operate the system until the temperature within the vehicle has stabilized. This check should be made with the vehicle driven at approximately 40 miles per hour. Note the stabilized thermometer temperature reading. To satisfy the average driver, the thermometer should read 80 degrees for 75 degrees dial setting. The system is designed for this initial calibration, however it may be altered to suit an individual owner's preference. If the vehicle is said to be too cool for a given temperature dial setting, rotate the control in the direction indicated by the curved arrow and the warmer notation (clockwise when looking at the bottom of the unit). If the vehicle is said to be too warm, rotate the control in the opposite direction. Be sure to mark the original control setting before re-adjustment. Each calibration division is approximately 2 degrees F.

If necessary, readjust and again operate the vehicle at approximately 40 miles per hour and note the stabilized temperature again. A minor calibration adjustment may be necessary to complete the temperature calibration.

TEMPERATURE CONTROL RHEOSTAT CALIBRATION

The control assembly may be calibrated by varying the relationship between the temperature lever and the temperature control rheostat. Use the Rotunda ohmmeter ARE 27-42.

Loosen the coupling between the temperature lever and the rheostat shaft. Set the temperature lever at 75 degrees F. Disconnect the rheostat from the wiring harness. Calibrate the ohmmeter as indicated inside the ohmmeter cover with the multiply-by knob at 10. Connect the ohmmeter between the black and the white leads of the rheostat. Adjust the rheostat until the ohmmeter reads 268 ohms. Tighten the coupling and check to make sure that the temperature setting is at 75 degrees F. and the rheostat resistance is 268 ohms.

REMOVAL AND INSTALLATION

For removal and installation procedures for heater components, except the heater core, refer to Part 34-03, Section 7. For the A.C.C. system heater core and for air conditioning components other than given here, refer to Part 34-04, Sections 8 and 9.

INSTRUMENT PANEL TEMPERATURE SENSOR

1. Disconnect the battery ground cable, and remove the glove compartment liner.
2. Disconnect the hose and wire from the sensor.
3. Remove the sensor mounting bracket retaining screws and remove the sensor and bracket.
4. Transfer the mounting bracket to the new sensor (some sensors are provided with a bracket already attached).
5. Position the new sensor and bracket to the instrument panel and install the retaining screws.
6. Connect the wiring and hose to the sensor.
7. Install the glove box and connect the battery ground cable.

OUTSIDE AIR (1) AND RECIRCULATING AIR (2) DOOR TEMPERATURE SENSOR

1. Disconnect the battery ground cable, then remove the cowl right side trim panel.
2. Disconnect the sensor multi-connector.
3. Remove the sensor retaining screws and remove the sensor.
4. Position the new sensor on the outside air (1) and recirculating air (2) door and install the retaining screws.
5. Connect the multi-connector, and install the cowl trim panel.
6. Connect the battery ground cable.

TEMPERATURE CONTROL BOX

1. Disconnect the battery ground cable.
2. Remove the glove compartment liner.
3. Disconnect the three electrical connectors and the vacuum connector.
4. Remove the bolt retaining the control box to the bracket, lift the box and remove it.
5. Position the new box to the bracket and install the retaining bolt.
6. Connect the three electrical connectors, connect the vacuum connector, and install the glove compartment liner.
7. Connect the battery ground cable.

3 SPECIFICATIONS

AUTOMATIC TEMPERATURE CONTROL

Vehicle	Refrigerant 12 Capacity (Pounds)	CURRENT DRAW @ 12 VOLTS		A/C Thermostat (Ambient) Switch ±3° F.
		Blower Motor (High Speed)	Magnetic Clutch	
Thunderbird & Continental Mark III	2 1/4	16–20 Amp.	3.75 Amp. Max.	
Lincoln Continental	4 ± 1/4	21–24 Amp.	3.75 Amp. Max.	Cut Out 35° F. Cut In 55° F.

AIR CONDITIONING COMPRESSOR (ALL CARS)

Torque Limits (Ft-Lbs)		
Description	Tecumseh	York
Cylinder Head	20–24	15–23
Front Seal Plate	54–78 In-Lb	7–13
Service Valve (Tube-O)	20 ± 10	20 ± 10
Mounting Bolt	20–30	20–30
Oil Filler Plug	18–22	4–11
Clutch Mounting	20–30	20–30
Base Plate		14–22
Back Plate		9–17

COMPRESSOR OIL CAPACITIES①

		Vertical	Horizontal
Tecumseh③ (11 Fluid Ounces)		7/8 Inch Min. 1 3/8 Inch Max.	7/8 Inch Min. 15/8 Inch Max.
York③ (10 Fluid Ounces)		7/8 Inch Min. 1 1/8 Inch Max.	13/16 Inch Min. 1 3/16 Inch Max.
Driven Belt Tension (Between Fan Pulley and Air Conditioner Compressor):			
	New	140 lbs.	
	Used②	110 lbs.	
	Minimum③	90 lbs.	
Belt Tension Tool		T63L-8620-A	
Compressor Clutch Run-Out		1/32 Inch Maximum	

①Use Suniso No. 5, Texaco Capella E or Equivalent.
②Belt Operated for a Minimum of 10 Minutes is Considered a Used Belt.
③Do not add oil if dip stick indicates proper level of oil between minimum and maximu.
If dip stick is below minimum level, add oil up to minimum oil level only.

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Automatic Temperature Control Chart